Indian Archaeology

1975-76 A REVIEW



INDIAN ARCHAEOLOGY 1975-76
—A REVIEW

EDITED BY

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The shrine of Khwaja Abu Nasar Parsa, Balkh, Afghanistan

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PREFACE

The present issue of the *Review,* in its content, follows the pattern of its predecessors, viz. incorporating material submitted by the various agencies engaged in archaeological work in the country, to whom I am beholden for their cooperation. This is the third issue to be brought out during the year 1979, and if everything goes well, the issue for 1976-77, which is already in the press, may come out within a couple of months. I heartily thank my colleagues in the Survey who have helped me in editing and seeing the volume through the press, as also Messers Naba Mudran Private Ltd., Calcutta, for bringing out these issues within such a short period.

Readers would recall that as a result of the recommendations of a Committee, set up by one of the Sections of the Conference on Asian Archaeology, held in New Delhi in December 1961, to consider the problem of terminology in Indian prehistory, especially relating to the various hunting and food gathering stages, the terms Early, Middle and Late Stone Ages were accepted to be used in the subsequent issues of the *Review* (commencing from *1961-62).* Since then considerable field-work in prehistoric and Quaternary studies has been done in India, and the position has appreciably changed: a blade-and-burin industry, recalling the Upper Palaeolithic of Europe has been identified in various regions of India, in stratigraphical horizons underlying the deposits belonging to the so-called Late Stone Age; and some similarities between the post Acheulian flake industries of the so-called Indian Middle Stone Age and those of the Middle Palaeolithic of Europe have been recognized. Both these factors call for a revision of the terminology agreed upon in 1961, and the adoption, in its place of the terminology of European prehistory. Let not this suggestion be taken without unnecessary presaration. It is not intended that prehistoric cultures of India present a similar succession of technological and chronological stages as those of Europe. There are obvious pit-falls in the wide application of the cultural terms, especially in view of the environmental diversity and the size of the country, which may show different 'culture cycles' and phases of regional specialization. For example, the blade-and-burin industry, grouped under the Upper Palaeolithic of India, is not necessarily to be correlated with the Wurm Galciation as its counterpart in Europe. A standardized sequence for Indian prehistoric cultures can only be built through intensive stratigraphic studies in the various regions, including those relating to the fluctuations of the sea-level. Till then the terminology of European prehistory, which indeed has wormed its way deeply into the literature, a five-fold division, Lower Palaeolithic, Middle Palaeolithic, Upper Palaeolithic, Mesolithic and Neolithic is being adopted. Caution, however, has to be exercised even in its application, for all microliths-using communities need not necessarily be Mesolithic. We may wherever necessary suitably qualify these divisions to retain their identity without much overtone. I would earnestly request the contributors to use this terminology while submitting their material for the *Review.*

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B. K. THAPAR

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I. EXPLORATIONS AND EXCAVATIONS

ANDHRA PRADESH

1. EXPLORATION IN DISTRICT CUDDAPAH.—In the course of exploration, Sarvashri I. K. Sarma and D. Hanumantha Rao of the South-eastern Circle of the Archaeological Survey of India[1] discovered near Mungapet, 10 km from Kodur on the road leading to Rajampet an extensive Middle Palaeolithic site yielding tools of the scraper-blade industry, mostly of chert and jasper.

2. EXPLORATION IN DISTRICT GUNTUR.—Shri D. Hanumantha Rao of the South-eastern Circle of the Survey discovered a Durga temple, locally known as Rupalamma Gudi, at Terala in Palnad Taluk. The temple shows traits of both the *Dravida* and *Vesara* orders, recall ing features of the Eastern Ganga temples of Mukhalingam and the early Chalukyan temples at Alampur. The *garbha-griha* and the *mandapa* of the temple are still to be seen preserved within the debris. It is noteworthy that temples of this order are rare in this region.

3. EXPLORATION AND EXCAVATION AT KEESARAGUTTA HILL, DISTRICT HYDERABAD.—Extensive exploration of the Keesaragutta hill, situated at a distance of about 40 km from Hyderabad, by the Department of Archaeology and Museums, Government of Andhra Pradesh, revealed remnants of an extensive fortification wall around the hill, enclosing an area of about 3 to 4 km. The fortification wall, made of rubble foundation with brick superstructure (brick-size: 50 x 25 x 8 cm) and provided with screening walls and three entrance gateways with guard rooms on all the sides excepting the south and a few openings in the walls towards water-sources, is datable to the early historical times. Opposite the Ramalingesvara temple on the hill, thirty *lingas* of black basalt, with rounded tops and octagonal shafts, bearing incised *brahma-sutras,* were found arranged in four rows on brick pedestals, at a regular interval of 3-5 m. A similar *linga* in brick, found here, testifies that bricks were also used for making *lingas.* Of the two label inscriptions in Telugu characters of Vishnukundin copper-plates, one reads *Tulachu- vanru,* meaning carvers. Besides, vestiges of a number of brick temples were also seen all over the area. It would appear, therefore, that in the early stages, the temples were made entirely of bricks, with stone replacing bricks gradually.

Excavation was conducted in the area north of the tank on the slope of the hill with a view to ascertaining the nature and chronology of the brick temples. Digging revealed a huge five-roomed brick structure with 2-m thick walls, showing a rectangular hall and a square porch with a flight of steps in front. The existence of flat rectangular tiles in the debris indicates the nature of the roof of the structure. Another structure was unearthed north of the above structure. This structure, with elaborate flight of steps beginning with a moonstone, has six rooms in two rows intervened by a central hall. The whole complex was surrounded by an

[1] The Archaeological Survey of India is referred to in the following pages as the 'Survey'.

enclosure wall. The associated ceramic industry is represented by red polished, brown polished and dull red wares. Fragments of sprinklers and spouts in red polished ware were also collected. Other important finds include: coins of the Vishnukundins, showing squatting lion with spiralled tail and raised fore-paw on the obverse and a *purna-ghata,* flanked by two lamps within a rayed circle on the reverse; human and animal stucco figurines, probably intended for decorating the walls; shell bangles; beads of semi-precious stones like jasper, crystal, etc.

4. EXCAVATION AT DHULIKATTA, DISTRICT KARIMNAGAR.—The Department of Archaeology and Museums, Government of Andhra Pradesh, undertook excavation at Dhulikatta with a view to ascertaining the material culture of the Satavahana period {*Indian Archaeology 1974-75—A Review,*[1] p.3) and also to establishing the culture sequence at the site. Two trenches, DKT-I and II, across the mud-fortification and on the *stupa-mound* outside the fortification, were taken up for excavation.

At DKT-I, of the two cuttings, the first one across the fortification on the south, revealed two huge brick-built gateways, one outside and the other in the middle. The outer gate, the plan of which could not be ascertained due to extensive damage, appears to be earlier. The extant walls measured 7.9 x 3.75 m. In the centre, abutting the western wall was found a cistern (1.20 x 0.90 m) with brick-paved floor. The cistern yielded conical bowls of red ware and dishes of black polished ware and animal bones. The other gateway, a wider one which had been constructed by cutting the mud-fortification, comprised two parallel walls running to a length of 15.30 m north-south with walls of 4.70 m length, connecting them at right angles. The intervening gap of 4.40 m served as a pathway into the fort. The wings on either side of the gateway perhaps served as guard rooms.

In the second cutting in the middle of the fort, a huge wall with thirty courses of bricks (size: 55 x 27 x 7 cm), standing to a height of 2.50 m and running north-south to a length of 21.70 m was encountered. Adjoining to this a residential complex of later phase was exposed. The complex was entered from the north through a flight of steps having a *chandra-sila* at ground level. The exterior wall of this structure showed chases and grooves, intended perhaps for pillars supporting the roof. Remnants of lime plaster were seen on the extant walls. The brick-paved flooring was lime-concreted.

Other finds include: coins of Gautamiputra and later kings of which one was a silver coin of Sivasri, bearing his portrait; a terracotta figure of a Roman (?) trader wearing a discular hat with a rosette (broken) at the top (pl.I A); kaolin figure of a *yaksha,* seated in *dhyana-mudra* and two mother goddesses; a number of beads of semi-precious stones; and iron objects like rivets, nails and hinges.

Excavation at DKT-II revealed a Buddhist *stupa* built some time in the last quarter of the third century B.C. with subsequent veneering in the first quarter of the second century B.C. The *stupa* consisted of a *garbha,* standing to a height of 1-50 to 2-00 m above the ground level over a a rubble basement of single course. The *anda,* 5 m in height, was crowned by a *harmika,* once surmounted by a *chhatra* or *chhatravali* of limestone, the fragments of which were recovered during the excavation. The drum is provided with four *ayaka* projecting platforms at cardinal directions, a feature typical of Andhra *stupas.* The *stupa* was encased with forty-seven sculptured slabs, fixed with lime mortar; a few broken slabs were also recovered. Two panels, depicting Naga Machilinda (pl. I B) with five hoods beneath a pipal tree under a *chhatra* protecting Buddha, symbolically represented by two feet, were found inscribed in Brahmi characters, assignable to the second century B.C. The first one reads *gahapatino pathalasa mathuya samaya danam,* and the other between the eastern and northern *ayaka* platforms reads *pitasa nandi puthasa*

[1] This publication will hereafter be referred to by the year only.

dhuthyua sayonija danam. Two *Buddha-padas* decorated the body of one of the *nagas* while the other bore figures of two male votaries, standing in *anjali* pose on either side of a *dharma-chakra.* Many of the slabs were carved with replicas of *stupa* in relief. It appears that in the first phase, the *stupa* was enclosed by a square platform and in the subsequent phase, projecting *ayaka* platforms, serving as *pradakshina-patha,* were added. This *stupa* apparently belongs to the Hinayana school, as evidenced by the symbolic representation of the Master.

5. EXPLORATION IN DISTRICT KRISHNA AND NELLORE.—During the course of exploration, the Department of Archaeology and Museums, Government of Andhra Pradesh, discovered many sites yielding vestiges of archaeological interest.

At Moghal Rajapuram in District Krishna, a row of *stupas* carved in bas-relief on the rock-face, several of which are unfinished, were noticed. A flight of rock-hewn steps with a *chandra-sila* leads to these *stupas* from the levelled ground.

Near Peddasanagallu, a habitation site locally known as Gangalamma Cheruvu yielding megalithic Black-and-red Ware was noticed.

At Sangam. in District Nellore, on the eastern slopes of Sangamkonda hill, unfinished Middle Palaeolithic flakes in the colluvial gravels, coming from the higher levels, were noticed.

A trial digging, conducted at Jonnavada, revealed below the surface a 50-cm thick wind-blown sand and a layer of angular bouldery rubble, spread over a circular area of 22 sq m. This area contained a pit of 1.30 m in diameter and 1.00 m in depth, yielding rubble and fragmentary potsherds of early historical times, including black-and-red ware. Traces of once-existing circle of boulders were also noticed. At a distance of 10 m from this, an oval pit, cut into the natural laterite, was also discovered, recalling the rock-cut megalithic caves of Kerala. Such caves have not so far been reported on the eastern coast and as such their occurrence here needs confirmation by further exploration.

6. EXPLORATION IN DISTRICT PRAKASAM.—During the course of exploration around Kanigiri, the Taluk headquarters, the Department of Archaeology and Museums, Government of Andhra Pradesh, brought to light a Middle Palaeolithic and two neolithic sites. The Middle Palaeolithic site is located on the foot of the hillock near the village. An exposed section revealed four strata: (i) uniform red *muram* ; (ii) implementiferous, thin uniformly-spread colluvial gravel; (iii) disintegrated granite, yellowish green in colour; and (iv) granite bed-rock.

Of the two neolithic sites, one is located 1 km away from the hillock and the other close to the town. The latter site rises to a height of about 50 cm to 1-00 m from the ground level, yielding neolithic tools and pottery consisting of burnished grey, red and buff wares. Types recovered are globular and lipped vessels.

Shri D. Hanumantha Rao of the South-eastern Circle of the Survey discovered an extensive site belonging to the neolithic/chalcolithic period in the U-shaped valley of Sannakonda near Guntupalli which yielded ground stone tools, handmade pottery, mostly of coarse red and grey wares, beads of steatite and a splayed out axe type of copper celt. Megalithic cairn-circles were also noticed.

7. EXCAVATION AT CHANDAVARAM, DISTRICT PRAKASAM.—In continuation of the last year's work *(1974-75,* p. 6), the Department of Archaeology and Museums, Government of Andhra Pradesh, under Dr N. Ramesan assisted by Shri P. Ramachandra Murthy, resumed excavation with a view to exposing successive floor-levels around the *pradakshina-patha* and to determining the various structural phases of the *stupa.*

Excavation at CND-I, the *maha-stupa* area, indicated that the lime concrete flooring, noticed earlier, extended up to an area of 40 sq m, almost touching the sill of the berm-railing near the northern *ayaka* platform. A gradual gradient was observed towards the *pradakshina-*

patha with the flooring merging with the stone platform of the later phase. Three successive floorings of mud and lime, intervened by 5-cm thick earth filling, were discerned. The moonstone was found concealing an earlier flight of steps sealed by 30-cm thick deposit. Originally, the *stupa* was constructed by levelling the shale-stone bed-rock and a lime plastered mud flooring, extending up to the northern *ayaka* platform. Since the later shale platform, provided up to the *pradakshina-patha,* had disturbed the original basement, it was not possible to ascertain their relative chronological or structural sequence.

On the north-eastern side, the entire terraced construction from the ground level to that of the *pradakshina-patha* was exposed, revealing a small circular votive *stupa* at a lower level further north. The limestone flooring encountered earlier was found to continue, though in patches. A 5-m long slate-lined drain, of a later date, partially covered by stones of the same variety and cut into the flooring, was also exposed. Near the eastern *ayaka* platform, it was noticed that the terrace at the foundation level was broad and tapered gradually to the level of the *pradakshina-patha.* On the western side, the steps leading to the stairway were exposed up to their ground level, so also the terraces down to the foundations.

Further work near the apsidal *chaitya,* found to the north of the *maha-stupa* last season, exposed a monastic-complex enclosed by a phyllite stone wall on each side. This piled up wall rose to a height of 1.0 m on the north and gradually merged with the ridges on the south. The stratigraphic relationship of this wall with the monastery still remains to be ascertained. The monastery was entered through a flight of transverse steps close to the circumambulatory passage on the southern end. The entrance to the monastery on the wast is occupied by vestiges of a *stupa* and an apsidal *chaitya.* The entire area is strewn with remains of votive *stupas,* cells and stumps of pillars.

The monastery proper was built on the bed-rock. A flight of steps, 1 .50-m broad on the east, led to a verandah running up to the return wall on the east. The flooring of the verandah was found paved with shale. The return wall of eleven courses is 3.15 m in length. On the west, a few cells of a *vihara* with a verandah (15-m long) in front, were exposed. At the level of the foundation on this side, some brick structures of indefinite plan and of unknown purpose were unearthed. The presence of broken columns would suggest the existence of a *chatuhsala* or open pillared *mandapa* in the centre.

Noteworthy finds recovered from the excavation are coins of Yajna Sri Satakarni, the Satavahana ruler.

At CND-II, the *chaitya-griha* area, the boundary walls on the east and west and traces of earlier structures were exposed.

At CND-III, near the wheel-shaped *stupa,* further excavation beyond the earlier exposed *vedika* revealed that the exterior of the rim was plastered with fine lime; this lime plaster was quite different from that of the *vedika.* The area between the ring and *vedika* was found disturbed.

8. EXPLORATION IN DISTRICT VISHAKHAPATNAM.—During the course of exploration, Sarvashri K. Sreenivasa Murthy and K. Satya Murthy of the Department of History and Archaeology of the Andhra University, brought to light sites yielding Middle Palaeolithic and microlithic tools. At Arakuvalley, 118 km away from Vishakhapatnam, Middle Palaeolithic tools made of quartz were collected from the terrace of a rivulet known as Chinnagadda. The tool-types include scrapers, blades and fluted cores. Madanapuram and Tatipudi yielded both Middle Palaeolithic and microlithic tools represented by scrapers, blades, points, flakes and fluted cores, besides a handaxe. The general stratigraphy of the site was as follows, from bottom upwards : weathered bed rock; coarse gravel of sterile layer of silt; implementiferous fine gravel; and silt. At Kottavelagada, about 2.5 km away from Madanapuram, was noticed an industry on quartz, comprising mainly blades and occasionally scrapers.

9. EXCAVATION AT POLAKONDA, DISTRICT WARANGAL.—The Department of Archaeology and Museums, Government of Andhra Pradesh, conducted excavation at Polakonda (pl. II), 14 km from Mondirai on the Jangoan-Suryapet road, with a view to ascertaining the neolithic character of the site. During the preliminary exploration inside the rubble built medieval fort on the hill, grey and dull red wares of the neolithic affiliation were picked up. At the bottom of the hill, a little away from the tank on its south-east, a megalithic site, consisting of about seventy-five burials, was noticed. Typologically they were stone-circles with single and double bounding circles, mostly with a capstone in the centre. Neolithic vestiges including several axes were noticed on the slope and plains of the Peddagutta hill on the south and by the side of the channel dug by the Public Works Department behind the Peddagutta hill, locally known as Kommulagutta. The former site was named as PKD-I and the latter PKD-II.

At PKT-I, four trenches, at a regular interval of 50 m, encompassing the entire mound were laid. Digging revealed four phases viz., pre-, early and late Satavahana and Kakatiya periods.

Phase I, assigned to pre-Satavahana period, is characterized by the predominance of brown, black-and-red, black-and-brown, dark brown wares with sporadic occurrence of red ware. Shapes include small deep bowls, *lotas,* dishes in black-and-brown ware; straight-sided deep bowls, carinated vessels, deep bowls in dark brown ware; and a few conical bowls in dull red ware. A solitary copper coin from this level bears a legend in Brahmi characters, reading *mahathala (vara) siva saka* (or *sadha)* around a figure of a horse standing to the left on the obverse; the reverse is defaced. This would indicate that at this time the region was ruled by one Maha-thalavara Siva Sada (Saka) also corroborated by the find of a seal from Peddabankur which reads *mahathalavarasa vijasami ka sa siva sadha.*

Phase II, belonging to the early Satavahana period, is characterized essentially by the presence of red and black-and-red wares. Types represented in the pottery are deep bowls with bright red wash, conical bowls, carinated below the neck in dull red ware, dishes and miniature bowls in black-and-red ware and lids of red ware.

Phase III, belonging to the late Satavahana times is distinguished by red, grey and black-and-red wares. Storage jars with fingerprint designs in red ware, vases in grey ware and dishes in black-and-red ware are the main shapes.

Structures of Phases II and III were of rubble and baked bricks. In one of the trenches, two brick walls of two courses, one on the west and its return on the south, with a 10-cm footing were noticed. The walls measured 5.10 m in length and 0.55 m in width. Presence of post-holes on the walls indicate wooden superstructure. Within these walls was found a cistern (1.80 x1.70 m externally and 85 x 75 x 60 cm internally) with a 4-cm offset at the bottom. The cistern is paved with bricks.

Digging in PKD-II revealed three periods, viz., neolithic, megalithic and medieval, the earliest period being sub-divided into two phases, lower and upper. The lower neolithic phase is characterized by handmade burnished grey, black and dull red wares, shapes represented being vases with elongated necks, decorated with applique rope design and impressed finger nail designs. The upper neolithic phase is distinguished by the occurrence of a few microlithic flakes of chert and crystal and as mall copper wire-ring indicating the influence of chalcolithic culture on the neolithic. Post-holes were noticed in the neolithic levels, and a few saddle querns without legs were found from the floor-levels.

The megalithic period is characterized by the occurrence of the Black-and-red Ware, red-slipped and dull red wares; shapes represented being dishes, deep bowls and vases. Iron objects include a broken sickle, a ring, a ladle without handle and a spear-head. A potter's kiln with some broken neolithic handmade pottery and a broken stone axe was noticed in a trench adjacent to the channel. A little away from here, a stone rubber with pecked marks on the inner side and ground on the other was picked up from the surface. On the south-eastern slope

of the Peddagutta hill were noticed many grooves, apparently intended for grinding and polishing stone tools.

BIHAR

10. EXCAVATION AT ANTICHAK, DISTRICT BHAGALPUR.—In continuation of the last year's work (*1974-75,* pp. 7-8) the Vikramshila Excavation Project of the Survey under Dr B. S. Varma, assisted by Sarvashri B. N. Prasad, S. C. Saran, B. Bandopadhyaya, A. Mukherjee, B. Singh and T. K. Srivastava, resumed the excavation with a view to further exposing the structural remains of the monastery.

Excavation in the southern wing brought to light three more cells with a common verandah and a narrow passage (14.60 x l.40 m) originally covered, leading towards south. The flooring of the passage is paved with bricks (pl. Ill A). At a later stage, the entrance from the outside was blocked with bricks and stone slabs. At the entrance were found square stone bases, perhaps those of door-jambs.

On the south-eastern corner, where the southern and eastern verandahs meet, four cells facing a verandah were exposed; the cells had a small balcony with arched roof resting on the outer wall of the monastery. The last southern cell of the eastern wing was connected to the circular projection with a diagonal passage at the corner. The floors of the cells and the projection are well-preserved. The thick wall of the projection revealed three floor-like patches, probably window-sills, 7 to 8 cm above the floor-level of the cells at regular intervals. The outer wall was 3.30 m thick. The presence of these patches of plaster may indicate that the other cells of the monastery-complex also had similar devices. Two structural phases were noticed in these structures.

Excavation in the centre of the eastern wing brought to light three cells of the main wing interconnected with the corresponding three cells in the central outer projection, similar to those of the southern and western wings. A semi-cruciform projection, sloping towards the inner courtyard of the monastery, was found attached to the inner wall of the verandah. At the end of the inner projection, three flights of steps leading to the inner courtyard were exposed.

In the excavation at the eastern wing, three more cells with a common front verandah were exposed. Underneath the floor of one of the cells, remains of an underground cell were encountered.

A few more steps of the northern gate-complex were exposed. The area between the northern gate and the central shrine had a pathway *surkhi* and lime, laid over paved bricks (pl. IV).

Clearance of the blocked northern chamber of the central shrine brought to light a huge mutilated terracotta Buddha, seated in *bhumisparsa-mudra* in *padmasana,* the pedestal of which contained figures of lion, elephant, attendants and a kneeling devotee in the centre, in the niches (pl. Ill B). On either side of Buddha were seen remnants of legs of standing human figures and vestiges of *puma-ghata.* Attached to the back wall of the chamber was a terracotta *prabha-mandala* with traces of painting in red ochre over a white background. It appears that when the figure of the Buddha was mutilated the extant lower portion was buried under debris and the entrance to the chamber blocked. Over the filling, a new brick pedestal was constructed and a fresh image of Buddha of black basalt in *bhumisparsa-mudra* was installed. This image has been removed by the previous excavators.

Excavation at the south-western comer of the northern ante-chamber of the central shrine revealed that the main shrine was built over sixty-nine courses of brick-built foundation, rising to a height of 6.35 m.

Outside the monastery-complex, towards the north, later structures were encountered

over the earlier habitation deposit. In one of the trenches in the extreme north an open drain of reused and dressed stones was encountered.

Sculptural remains, found during the excavation, include images of Surya, Vishnu (pl. VA), Ganesa (pl. VI A),Parvati (pl. VII A), Sadyojata (pl. VIII A), Kaumari (pl. VB), Buddhas (pl. VIIB), Avalokitesvaras (pl. VIII B), Simhanada (pl. VI B), etc., figure of an attendant holding a staff, sculptured door-jambs, gargoyles, door-sills, etc., stone and terracotta votive *stupas* and terracotta human heads (pl. IX). A small bronze dog and an ivory elephant are the noteworthy finds of this season. Besides, a copper coin, a circular inscribed steatite seal, objects of copper and iron, stone beads were also recovered.

The ceramic content of this season's excavation consisted of the usual pottery of the Pala period, encountered in the last season,

11. EXCAVATION AT CHAMPA, DISTRICT BHAGALPUR.—In continuation of the last year's work *(1974-75,* pp. 8-9), the Department of Ancient Indian History and Archaeology, University of Patna, under Professor B- P. Sinha, Sarvashri B. Narayan and A. K. Singh, assisted by Sarvashri B. Kumar, S. K. Kaviraj, resumed excavation at Champa for the sixth season, with a view to ascertaining the extent of the ancient Champa beyond the trench CMP-IM.

Excavation in the extended trenches at CMP-IM brought to light three structures, assignable to the late Northern Black Polished Ware Period. The first structure on the east comprised four rooms, two of which measured respectively 2.90 x 2.50 and 2.10 x 2.58 m the other two being not fully exposed. The second structure to the west of the first also contained four rooms, two of which measured respectively 1.60 x 2.70 m and 2.65 x 1.38 m; the walls of the other two rooms are concealed under the baulks. The floors of these rooms had a brick soling of four courses. The third structure comprised a big hall and two rooms, one at the north-west and the other on the north of the hall; their measurements along east-west and north-south being 5.42 x 3.10 m, 2.60x2.26 m and 2.60 m respectively; the other wall of the last room was concealed under the baulk. The hall had solid brick-floor of seven courses and was found disturbed at places by later pits. Two brick walls, one at the southern and the other at the north-eastern corner of the northern room, were noticed. Besides, two shallow well-like structures, found further to the west, might perhaps be storage pits.

Another trench in the same area revealed a brick wall and solid floor of bricks of seven courses and is assignable to the late Northern Black Polished Ware Period.

Associated finds of this Period include: stone and glass beads; terracotta crucible, ear-ornaments, plaques of female figures, one of which being of winged female; and bone arrow-heads. The associated ceramics were characteristic of the late Northern Black Polished Ware Period.

The Kushan period is represented by a structure of two rooms, measuring 1.50 x 0.90 m and 1.38 x 1.40 m, one on the north and the other on the south, with floors made of four courses of bricks. In the northern room, a brick-built well, 1.20 m in diameter, was encountered. A wall, built of reused bricks and brick-bats, belonging to the Gupta period, was also encountered. Over the remains of the Gupta period were found three walls of the Pala period.

Antiquities assignable to the Kushan period consisted of stone and terracotta beads and terracotta plaques of male deities; those of the Gupta and Pala periods were bronze female figurine and terracotta sealings and terracotta figurines respectively.

There was no change in ceramic contents of the periods from those already noticed in the last season's work.

Excavation at CMP-2A brought to light an extremely well-built but partially damaged drain, plastered with lime, *kankar* and sand. The drain running east-west was sealed by a layer yielding the Northern Black Polished Ware and other associated pottery, and as such is assignable to the pre-Northern Black Polished Ware levels.

12. EXCAVATION AT KATRAGARH, DISTRICT MUZAFFARPUR.—The Department of Archaeology and Museums, Government of Bihar, under the direction of Dr Sita Ram Roy, assisted by Sarvashri Md. Manzar Hasan, Krishna Kant Sharma, Lakshman Prasad Singh, Rajendra Prasad Singh, N. C. Ghosh, Uma Shankar Pandit, Naseem Akhtar, P. K. Jayaswal, Ram Janam Prasad and Shrimati Madhuri Agrawal and Shrimati Indumati Pathak, conducted excavation with the view (a) to ascertaining the nature of the fortification; and (b) to obtaining the cultural sequence of the site.

Excavation across the fortifications revealed two phases of structural activity, the earlier of rammed earth and the later of baked bricks of the size 50 x 30 x 8 cm. The brick wall, 2.60 m wide, is constructed in the English bond. A semi-circular watch-tower, 80 cm in diameter, was encountered at the north-western corner. The basal width of the mud rampart could not be ascertained due to the limited nature of the dig. The fortification is assignable to the Sunga period.

The Sunga period is represented by the pottery consisting of red, grey and the Northern Black Polished Wares. The Northern Black Polished Ware is available in shades of golden, silvery, jet black and metallic steel grey. Among these, however, is a solitary example showing red colour on one side and black on the other. The principal types represented in red ware include vase, dish, bowl, lid-cum-bowl, *handi,* lipped bowl, storage jar, vessel with decorative spout, and miniature vessels.

Other finds of the Sunga period include: beads, both finished and unfinished, of semi-precious stones like carnelian, jasper, crystal, etc.; objects of bone like pins, arrow-heads and styli; and terracotta objects such as human and animal figurines, representing ram, horse, bull and birds, plaques of male and female figures with elaborate coiffure and heavily ornamented, beads, spindle whorls, toy-carts, wheel, dice, skin-rubbers, corn-rubbers, ear-studs, potter's dabber and a mould for human head. The terracotta female figurines are partly moulded and partly hand-modelled, particularly the head-dress part. Besides, a few uninscribed copper cast coins and terracotta sealings, bearing only symbols are noteworthy. The bone pins of various sizes in large quantities encountered in a trench outside the fortification would indicate a factory site. A terracotta sealing with a legend inscribed in Brahmi characters of Kushan period is the only noteworthy antiquity from the post-Sunga levels.

After the Sunga period, the site appears to have been largely deserted. The occurrence of terracotta human figurines, assignable to the Kushan and Gupta periods, as also of pottery of the Kushan period would indicate the continuation of the habitation in a limited area in the post-Sunga period. The high water-table obtaining at the site did not permit the excavation to reach the natural soil. The presence of Northern Black Polished Ware and associated wares, terracotta decorated human and animal figurines, datable to the Mauryan period, collected from the surface and disturbed pits, take the antiquity of the site to pre-Sunga period.

13. EXCAVATION AT NALANDA, DISTRICT NALANDA.—Shri Vijaya Kant Misra, assisted by Sarvashri B. Nath and B. S. Jha, of the Mid-eastern Circle of the Survey, as a follow-up of the clearance work executed earlier *(1973-74,* p. 10) undertook excavation at Sarai Mound near the excavated remains at Nalanda, with a view to exposing completely the temple-complex, and to ascertaining the structural phases. It may be recalled here that an inscription of the seventh-eighth century A.D., mentioning the bronze images of Buddha, being installed by king Pumavarman, also corroborated by the description by Hieun Tsang, was discovered at the site earlier.

The excavation revealed a rectangular temple (pl. X A) measuring 31.70 x 22.70 m, with its entrance flanked by two projecting arms (6.50 x 5.35 m) having moulded decorations (pl. X B), pilasters and niches for housing images of deities and figures. Such figures have been obtained in the earlier debris clearance. The external facade of the structure was of plain brick

masonry, and the basement was found plastered with lime mortar. The forecourt between the projecting arms, screened by a low wall (7.75 x 1.21 m), was approached by a flight of steps, in between which a corbelled drain (60 x 25 cm) was encountered. A heavy stone slab (2.50 x 0.75), probably used as door-sill of the entrance to the sanctum, was also recovered. Partially-exposed stone pedestal inside the *garbha-griha* revealed remnants of paintings in red, black and white. The figures in two rows depicted a seated lady (Jhambala?) with her one hand raised (pl. XI A), an unidentified human figure and a standing elephant (pl. XI B).

Important finds encountered in front of this structure were: a number of votive *stupas* of brick and stone, some of them inscribed; images of Buddha in *dharmachakra-pravartana-mudra* and *bhumisparsa-mudra;* other deities of the Buddhist pantheon; inscribed sherds; and terracotta sealings.

14. EXPLORATION IN DISTRICT NAWADAH.—In the course of his exploration, Shri D. P. Sinha of the Mid-eastern Circle of the Survey located ancient site at Roh, revealing ancient structural and several sculptural vestiges datable to the eighth-ninth century A.D. Noteworthy among them are: remains of the structures, probably of a temple or a *stupa*; a well with a dia meter of 3-75 m; sculptures of Vishnu, a stone relief of seventy-six Buddhas in *bhumisparsa-mudra* in four rows with equal numbers of figures in each row, Buddha, Ganesa and Uma-Mahesvara, and a brick enclosure with many images of the Brahmanical faith such as Ganesa, Vishnu, Siva-Parvati and a *linga.*

15. EXPLORATION IN DISTRICTS RANCHI AND SINGHBHUM.—Dr Sita Ram Roy assisted by Dr Prakash Charan Prasad, Saravashri Naseem Akhtar, Ram Janam Prasad, Dilwar Bhengra, Krishna Kant Sharma, N. G. Ghosh, Rajendra Singh and Uma Shankar Pandit, of the Depart ment of Archaeology and Museums, Government of Bihar, during the course of exploration of the Suvarnarekha valley, discovered Lower and Middle Palaeolithic, Mesolithic and Neolithic sites. Lower Palaeolithic tools, mostly handaxes and cleavers, were found at Dubalabera, Malgaunsa and Pipratoli in District Ranchi and Ghoranagi, Jayada (pl. XII A) and Nardadih. near Chandil in District Singhbhum. The tools from the pebble deposit of the river bed at Jayada were of flint and quartzite. The sites at Ghoranagi and Nardadih also yielded a few tools belonging to the Middle Palaeolithic and Mesolithic Periods. Neolithic celts and mace-heads were collected from Ghoranagi (pl. XII B).

16. EXPLORATION IN DISTRICT VAISALI.—Shri B. Nath of the Mid-eastern Circle of the Survey, in his re-exploration of the northern bank of the river Ganga, located several ancient mounds at Bajidpur, Chechar, Madurapur and Maniyarpur and noticed massive brick structures, black stone sculptures, ring-well and pottery, assignable to the Sunga-Kushan period.

CHANDIGARH

17. EXPLORATION IN CHANDIGARH.—During the course of his exploration, Shri Lalman of the Punjab University, located the following ancient sites in and around Chandigarh.

Sarangpur, 2 km north of Chandigarh, yielded pre-Harappan pottery, represented by red and grey wares. The red ware is available in four fabrics such as thin, medium, sturdy and coarse.

Other finds of this period include terracotta beads and bangles biconical stone bead; perforated ring-stone and a number of saddle querns and mullers of grey sandstone.

Sector 29 of Chandigarh and Lahore yielded the Painted Grey Ware. Sectors 24, 27 and 47 and Karsan yielded grey ware and early historical pottery.

GUJARAT

18. EXPLORATION IN DISTRICTS AMRELI, BHAVNAGAR, JUNAGADH, RAJKOT AND UNA.— The Deccan College Post-graduate and Research Institute, Pune, under Professor R. V. Joshi, Drs S. N. Rajaguru, G. G. Majumdar, R. S. Pappu, G. L. Badam, S. J. Guzdar and Shri A. R. Marathe, occasionally accompanied by Sarvashri U. B. Mathur and K. K. Varma of the Geological Survey of India, Jaipur, Dr B. Roy of the Physical Research Laboratory, Ahmadabad and Dr A. Prakash of the Birbal Sahni Institute of Palaeobotany, Lucknow, resumed *(1974-75,* pp. 12-13) the study of the alluvial and coastal morphology of the Saurashtra peninsula, particularly to study the origins and chronology of the miliolite formations and their relation to the archaeology of the region.

This season's work was concentrated along the coast stretching from Bhavnagar to Chorwad and further inland around Gir Gadheda, Umrethi, Junagadh and Rajkot (flg.l). Observed stratigraphy in brief is as follows:

The basal Deccan trap is overlain by the Gaj-Dwaraka beds of Miocene age succeeded unconformably by fluvial gravels over which rests miliolite limestone—Miliolite I. Above this are the highly oxidized and calcreted fluvial sediments, separated by a disconformity from the Late Pleistocene miliolite—Miliolite II, and its associated formations, viz., oyster beds, shelly conglomerates and aeolianite. The whole is capped by sub-Recent fluvial deposits.

Coastal sites are: Kodinar and Mul Dwarka in District Amreli and Una; Gopinath Point, Jaspura and Samadhiala in District Bhavnagar; and Badalpur, Chorwad, Prabhas Patan and Sutrapada in District Junagadh.

The early Pleistocene agate conglomerate, occurring as a raised marine platform, noticed at Jaspura, 38 km south of Bhavnagar extends 5 to 8 km inland , as observed on the right bank of the river Maleshwari, opposite Adhevada, south of Bhavnagar. This deposit is underlain by Tertiary clays resting on ferruginous shales interbedded with thin bands of gypsum. A fluvial gravel deposit rests unconformably on the agate conglomerate which yielded a single artefact made on trap; the gravel is found about 12 m above the bed level. It looks most likely that this part of the peninsula might have undergone an uplift in recent times. Further, in certain areas the conglomerate is underlain by laterites as seen at Jaspura. In a cutting of the highway near Kesaria, 10 km north of Gopinath Point, a Lower Palaeolithic tool was found on the surface.

The Late Pleistocene coastal formations comprise: reolianites represented by linear dune at Gopinath Point, similar to dunes at Una, barchans at Nathad; creek oyster beds at Badalpur; shelly conglomerates at Kodinar; tidal clays, almost ubiquitous throughout the region; and fluvial near-channel-deposits, viz., Middle Palaeolithic gravels at Badalpur. The shelly conglomerate occurs disconformably in relation to the Early Pleistocene miliolite formations and their associated fluvial deposits. Evidence for the existence of early Man here in the Late Pleistocene when there was a marine transgression is lacking.

Samadhiala, 50 km west-northwest of Bhavnagar, on the tributary nullah of Kalubhr, noticed earlier by Shri S. Chakravarti of the Department of Archaeology, Deccan College Post-graduate and Research Institute, Pune, yielded excellent evidence of Palaeolithic occupation. The river Kalubhr, in its middle reaches, flows over the peniplaned surface around Umrala where a 50-m erosional surface has preserved Pleistocene alluvial fills (5 m), yielding Acheulian and Middle Palaeolithic tools. The tools are found in the calcreted older alluvial gravels datable to the Late Pleistocene. The well-cemented gravel formation is interbedded with fine sand and marly beds which in all probability is a relict channel-bar formation. Petrologically, the gravel is dominated by acid trap, chert and basalt. The pebbles are sub-rounded to rounded. There is a thin (1 m) capping of overbank brown calcareous silt. Typologically the tools are predominantly of Middle Palaeolithic with a few Acheulian. In the absence of evidence through

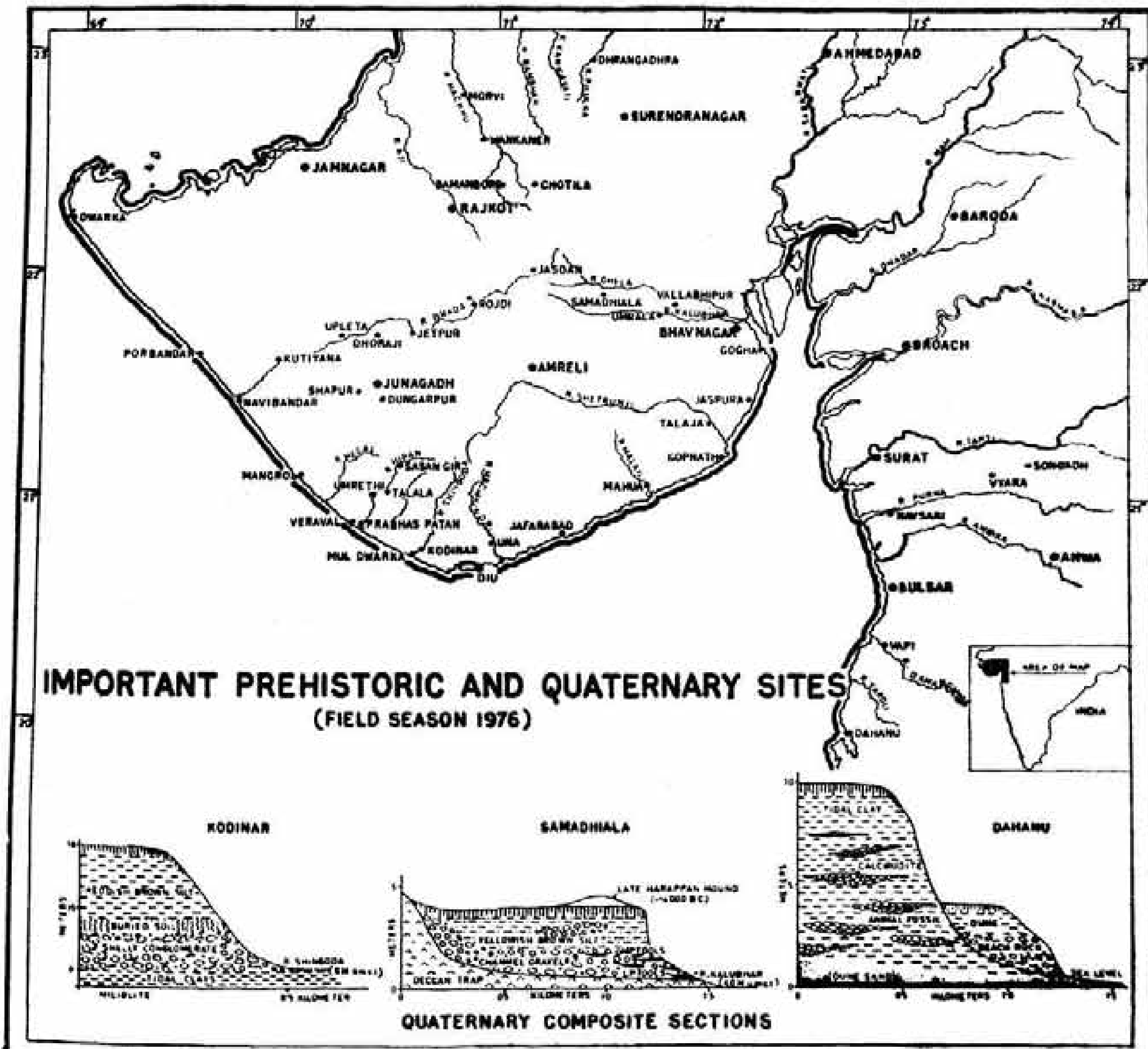

DHRANGADHRA
MORVI
SURENDRANAGAR
WANKANER
JAMNAGAR
CHOTILA
RAJKOT
DWARKA
AHMEDABAD
BARODA
JASDAN
VALLABHIPUR
SAMADHIALA
ROJDI
UPLETA
DHORAJI
JETPUR
BHAVNAGAR
GOGHA
PORBANDAR
KUTITANA
AMRELI
BROACH
SHAPUR
JUNAGADH
DUNGARPUR
NAVIBANDAR
JASPURA
TALAJA
GOPNATH
SURAT
MANGROL
SASAN GIR
TALALA
MAHUVA
VYARA
VERAVAL
PRABHAS PATAN
JAFARABAD
UNA
MUL DWARKA
KODINAR
DIU
SULSAR
VAPI
AREA OF MAP
INDIA
DAHANU
IMPORTANT PREHISTORIC AND QUATERNARY SITES
(FIELD SEASON 1976)
KODINAR
SAMADHIALA
DAHANU
TIDAL CLAY
LATE HARAPPAN MOUND
DECCAN TRAP
SEA LEVEL
QUATERNARY COMPOSITE SECTIONS

FIG. 1

excavations it is not possible to ascertain the exact clear stratigraphic relationship between the two tool-traditions.

In the inland areas around Umrethi, Junagadh and along the southern slopes of the Girnar Hills, Early Pleistocene formations, consisting of littoral linear dunes of Dongarpur and Junagadh fluvio-marine formations, traditionally known as miliolite limestone, as evidenced at Shapur on a tributary of the Ojat and the pre-miliolite fluvial deposits, viz. the boulder conglomerate at the base of Adi Chadi Vav, Junagadh were observed. The sites are important for : (i) they prove the existence of Lower Palaeolithic Man on the southern slopes of the Girnar hills prior to the first major Quaternary marine transgression; and (ii) the gravels underlying the miliolite, devoid of any miliolite pebbles, indicate a period when the coastal landscape was predominantly an erosional plain and the fluvial system was strong.

The evidence so far obtained would point out that the first Quaternary marine transgression extended fairly far inland through the ria-like valleys of the rivers like Hiran from the Arabian sea and Macchu from the Gulf of Kutch in the peninsula. This is supported by the evidence at Umrethi where the implementiferous fluvial gravels underlie the miliolite, Bamanbore where the valley fluvial miliolite grades into the valley aeolianite, Junagadh where fossil coastal calcarenites have formed obstruction dunes against the slopes of the Girnar Hills at the source of the Sonarkhi river, etc. If, a glacio-eustiatic, however modified by neo-tectonics, strandline is definitely recognized in the area, which is a possibility, it will increase the possibility of dating one of the earliest human cultures in western India in the context of a world wide chronology.

19. EXPLORATION IN DISTRICTS BANAS KANTHA, DANGS, GANDHINAGAR, JUNAGADH, KHEDA, PANCH MAHALS, RAJKOT AND SABAR KANTHA.—The Department of Archaeology, Government of Gujarat, in the course of exploration located following sites of archaeological interest.

(LPA=Lower Palaeolithic Age; M=Mesolithic; RS=Rock Shelter; H= ^Historical; and MS=Medieval Structure)

District	*Taluk*	*Villagejsite*	*Cultural assemblage*	*Name of monuments*
Banas Kantha	Palanpur	Palanpur	MS	Mithi Vav
-do-	Radhanpur	Sultanpur	MS	Div-no-gadh
Dangs	Dang	Anjankund	LPA, RS	
-do-	-do-	Pandva	LPA, RS	
-do-	-do-	Sann Kund	LPA	
Gandhinagar	Gandhinagar	Valad	MS	step-well
Junagadh	Porbandar	Bavavav	MS	temple at Pariadhar
Kheda	Kapadvanj	Bhubnamuvada	MS	*dargha*, step-well
-do-	-do-	Tclnar	MS	*hajira*
Panch Mahals	Godhera	Chhakkadia	H, MS	temple, step-well
Rajkot	Dhoraji	Patanvav	MS	*stupa*
Sabar Kantha	Himmatnagar	Rupal	MS	temple with inscriptions
-do-	Prantiji	Fatehpur	M	
-do-	-do-	Harsol	H	
-do-	-do-	Orana	M, H	

20. EXCAVATION AT PRABHAS PATAN, DISTRICT JUNAGADH.—The Deccan College Post-graduate and Research Institute, Pune, under Drs H. D. Sankalia and S. B. Deo, assisted by Drs. Z. D. Ansari[1] and M. K. Dhavalikar, in collaboration with the Department of Archaeology, Government of Gujarat, represented by Sarvashri J. M. Nanavati and C. M. Atri, resumed {*1971-72,* pp. 12-13) excavation with a view to: (i) finding out the material equipment of the people of the Prabhas Patan; and (ii) exposing the structural remains of the Late Prabhas Period *(circa* 1500-1200 B.C.), which were partly unearthed earlier.

The excavation revealed that the extension of the huge structure, exposed earlier, had been very badly disturbed by the construction of the eastern wall of the massive citadel of the early historical period. From the extant remains of the southern extension of this structure, it was not possible to find either its entrance or end. The nature and function of the building thus remains unsolved. Yet it could be said that initially the area was levelled with rubbles, even coursing them with mud mortar wherever necessary. The exposed structure consisted of many rooms, some rectangular (2.00 x 1.50 m) and some square (1.50 m), with flooring having soling made of rammed black sticky clay. Extant height of the walls is less than 60 cm with most of them retaining only one or two courses. No post-holes or any other such device for planting posts for supporting superstructure was noticed. It is probable, therefore, that this structure was open to the sky. In the absence of any fallen debris nearby, it may be concluded that the walls could not be higher than the present extant height. A few flat large stones, found on the northern wall, are probably door-sills of the entrances to the rooms. It may also be recalled that in the earlier excavation, it was observed that some of the rooms were provided with a set of two or three large flat-stones. A careful examination of the stratigraphy combined with the finds obtained from the structure and the absence of ash, charcoal or burnt earth or charred grains indicate that this structure was not a residential complex.

21. EXPLORATION IN DISTRICT KHEDA.—During the course of exploration, Shri K. N. Momin of the Department of Ancient History and Archaeology, M. S. University of Baroda, brought to light the following sites.

(LPA=Lower Palaeolithic Age; M=Mesolithic; BRW=Black-and-red Ware; BB=Burnished Black Ware; BR=Burnished Red Ware; MW=Micacious Ware; RPW=Red Polished Ware; GW=Glazed Ware; EH = Early Historical; EMP=Early Medieval Period; MP=Medieval Period; HSC=Hoard of Silver Gadhaiya Coins; and S=Sculptures)

District	*Taluk*	*Village/site*	*Cultural assemblage*
Kheda	Anand	Khambbolaj	EH, S (Indrani and Varahi)
-do-	-do-	Khanpur	BB, BR, GW, MP
-do-	-do-	Samarkha	HSC, MP
-do-	Balasinor	Balasinor	M, EH, BRW
-do-	-do-	Jetholi	BRW, BB, BR, EH
-do-	-do-	Mehmudpura	M
-do-	-do-	Pandwa	M
-do-	-do-	Parbiya	BRW, MW, BB, BR, EH
-do-	-do-	Todiya	M

[1] It is very much regretted that through oversite his name was printed wrongly as Desai in the issue for *1974-75,* p. 32.

Districts	Taluk	Village/site	Cultural assemblage
Kheda	Nadiad	Chunel	BB, BR, EMP, S (Vishnu, Mahishasuramardini)
-do-	-do-	Hathaj	BRW, RPW, MW, EH
-do-	-do-	Salun	BRW, BB, BR, EH
-do-	Thasra	Galteswar	LPA
-do-	-do-	Ravaliya	M
-do-	-do-	Rustampura	LPA (?), BRW, RPW, BB, BR, EH
-do-	-do-	Sernal	BB, BR, GW, MP

22. EXPLORATION IN DISTRICT PANCH MAHALS.—During the course of his exploration, Shri V. H. Sonawane of the Department of Ancient History and Archaeology, M. S. University of Baroda, discovered the following sites.

(LPA=Lower Palaeolithic Age; MPA=Middle Palaeolithic Age; M=Mesolithic; EHP=Early Historical Pottery; TC=Terracotta Objects; KC=Kshatrapa Coins; T=Temples; EHF=Early Historical Fort; SW= Step-well; MF=Medieval Fort; MS=Memorial Stones; MQ,=Mosque; S=Sculptures; JB=Jaina Bronzes; MP=Medieval Pottery; and MC=Medieval Coins.

District	Taluk	Village/site	Cultural assemblage
Panch Mahals	Devgarh Baria	Paroli	S,JB
-do-	Godhra	Nadisar	M, S, T
-do-	Kalol	Kanod	T, MS
-do-	-do-	Sureli	M
-do-	-do-	Vejalpur	T, SW, MS
-do-	Lunawada	Bakor	M, S
-do-	-do-	Dhamod	M, MF, MQ,, MP, MC
-do-	-do-	Kakachia	MS
-do-	-do-	Karanta	EHP, EHF, TC
-do-	-do-	Limbodra	T
-do-	-do-	Madhwas	LPA_3 MPA, M
-do-	-do-	Zarmarmata (Navagam)	M, S
-do-	Shehera	Matarai	KC, EHP, S (post-Gupta)
-do-	-do-	Valla vpur	M, T, MS

23. EXCAVATION AT CHAMPANER, DISTRICT PANCH MAHALS.—In continuation of the last year's work *(1974-75,* pp. 14-15) the M. S. University of Baroda, under Dr R. N. Mehta of the Department of Archaeology and Ancient History, resumed excavation in the outer compound of the large complex exposed earlier.

The excavation revealed several structures, presumably shops, the door of one of which had retained the chain and the eye, used for locking. Another structure had an underground

cell with a small niche having a small opening at its base. The latter shop yielded copper chess gamesmen, toe rings and remnants of copper scraps, indicating that this was a copper working shop. The main compound had two gateways (pl. XIII A), one original and the other constructed later by demolishing portions of the wall and drains, involving several changes warranted perhaps by the division of property. Earlier gateway had on its southern side a platform with a rectangular tower (pl. XIII B), now in a dilapidated state. Vestiges of pillars and the roof were noticed on the platform. A few rooms were also exposed inside the compound on the northern side of the main wall, of which one was near the main entrance and the other on the north. A niche in the northern room yielded a silver signet ring inscribed with the name Baba Gulam Ali. Several slightly raised and long platforms, perhaps meant for working or for trading, were exposed inside the compound. There was, however, no change in the ceramic contents of the site.

24. EXCAVATION AT KARVAN, DISTRICT VADODARA.—In continuation of the last year's work *(1974-75,* pp. 15-16) Shri W. H. Siddiqi, assisted by Sarvashri N. M. Ganam and I. D. Dwivedi, of the Western Circle of the Survey, resumed excavation with a view to exposing completely the structures partially unearthed earlier.

The excavation in the southern part of the mound exposed completely the partially exposed structure, which was found to be damaged by extensive brick robbing. Its plan, therefore, could not be ascertained. Patches of lime plaster were observed on the outer face of the northern wall of the moulded bricks. Patches of flooring available at places, clearly indicated that it was paved with bricks. *Apranala* supported by bricks and provided with a large soakage jar at the floor level, indicates that the structure was a temple, probably dedicated to Siva.

Another structural complex in the northern part of the mound, rectangular in plan and 30 m in length, consisted of more than one compartment. It was provided with a flight of steps with a moonstone at the entrance. The facade of the wall on the eastern half of the structure, which consisted perhaps of the sanctum and the porch, was built of moulded bricks and plastered with lime. The western half, built of plain bricks, seems to be of the later phase. A covered drain ending in *Sipranala* draining to a soakage pit (pl. XIV A), was encountered in the north-eastern corner of the structure. The structure is enclosed by an outer wall and the space in between paved with bricks which might have been used as *pradakshina-patha.* The temple (pl. XV), raised over a platform, consisted of a *garbha-griha* (6-5 sq. m), *antarala* and *mandapa,* as evidenced by the extant side walls (pl. XVI) with remnants of lime plaster. The *garbha-gnha,* having walls with many offsets and the comers made of chamfered bricks (pl. XIV B), had a *linga* on *yoni-patta* (pl. XVII A)connected with a covered drain and *apranala* (pl. XVIIB). Three successive lime-floors, each separated by 20-cm gap, were encountered in the sanctum. The entrance to this temple was also traced on the western side. A number of decorated bricks and stucco fragments were recovered from the debris.

Besides a net-work of several walls and floors pertaining to five structural phases was also exposed.' The flooring of either bricks or brick-bats had a cushion of rammed earth over which was a spread of brick-jelly *(surkhi)* and lime *kankar.*

Ceramic industry is represented by plain red, mica-mixed stamped red, coarse black and thick grey wares. Red Polished Ware was found too less in frequency.

Other finds obtained from the excavation include: beads of stone and terracotta; shell bangles- copper and iron objects; Kshatrapa copper coins; and a terracotta seal inscribed in Brahmi characters; fragmentary inscription on stone, datable to seventh-eighth century A.D., on the basis of palaeography, recording salutations to Siva by a devotee; and an image of Vishnu in black schist. The last two were found from the top layers.

On the basis of brick-size, pottery, coins and other finds, the site is datable from second century to eighth century A.D.

25. EXCAVATION AT VADAPADRA, DISTRICT VADODARA.—The M. S. University of Baroda conducted excavation in the compound of Udayanarayana temple with a view to ascertaining the cultural sequence of the site.

Excavation revealed that the site was first occupied around seventh century A.D., and continued under occupation till the seventeenth century A.D., with occasional flooding by the river Visvamitri.

The ceramic industry is represented by the occurrence of Medieval red-and-black, plain burnished black, burnished red and glazed wares, besides a few sherds of the Celadon Ware.

HARYANA

26. EXCAVATION AT BHAGWANPURA, DISTRICT KURUKSHETRA.—The Explorations Branch of the Survey, under Shri Jagat Pati Joshi, assisted by Kumari Madhu Bala and Sarvashri A. K. Sharma, J. R. Batra and G. Laxminarayana, conducted horizontal excavation at Bhagwanpura with a view to ascertaining the *inter se* relation of the Late Harappan and the Painted Grey Ware cultures.

The excavation revealed a 2-70-m occupational deposit with a two-fold cultural sequence, establishing for the first time the overlap between the Lata Harappan (Sub-period I A) and the Painted Grey Ware (Sub- period I B) cultures.

The Late Harappans, the earliest settlers on the rich alluvium of the river Sarasvati, had built their houses over solid mud-platforms, as a protection against the ravages of the Sarasvati. Two structural phases were recognized in this Sub-period. One of the excavated platforms (10-0x4-25 m) was found to have had a landing step, suggesting that the access to the mud-platforms was by means of steps. After a lapse of time, indicated by an accumulation of a 80-cm habitational deposit, the floods in the river caused considerable damage to the occupation. The Late Harappan people, however, continued to occupy the site even after this devastation.

The major ceramic industry of the Sub-period I A is represented by a sturdy red ware, comparable to that available at Bahadarabad, Bara, Daulatpur, Mitathal II B, Raja Karna-ka-Qila and Siswal II B.

Besides, a few sherds of thick grey ware, commonly associated with the Harappan and Late Harappan fabrics, were also noticed. An incised ware simulating the pre-Harappan tradition, continued throughout the succeeding Late Harappan levels. Common shapes met with include dish-on-stand, bowl, cup-on-stand, lid-cum-bowl, ring-stand, dishes with drooping rims, cup, high-necked jar, basin and button-based goblet. The painted design repertoire consisted of thick and thin horizontal bands, criss-cross patterns, filled-in-triangles, fish-like pattern, rows of opposite triangles, hatched triangles, arches with obliquely-filled lines, leaves and pipal leaf. Other finds of this Sub-period I A include: terracotta bull with long horns and pinched hump, leg portion of a human figure, probably a deity, two anthropomorphic figures; potsherds with graffiti marks of Harappan affinity; copper rods; hubbed terracotta toy cart-wheels; beads of terracotta, faience and semi-precious stones; and bangles of faience and terracotta.

Sub-period I B is marked by the appearance of the Painted Grey Ware occurring along with the preceding Late Harappan assemblage, indicating the arrival of new people. Soon after the arrival of the new people, a heavy flood washed away a considerable portion of the habitation, which did not deter the Late Harappans and the Painted Grey Ware people from continuing the occupation of the site.

The structural activity of the Sub-period is represented by three phases, the earliest of which evidenced by twenty-three post-holes, forming a circle or semi-circle, perhaps represented a thatched hut. From one of the huts, exposed in the south-eastern part of the mound, four saddle querns and pestles of different kinds were recovered. The residence probably belonged to a corn grinder. Two oval-shaped structures, measuring respectively 1-80x0-85 and 1-65x0-92 m,

one in the south-eastern periphery (pl.XVIII A) and the other in the centre of the mound, were exposed. Two structural phases were identified. One of these yielded fragment of a dish-on-stand in red ware arid a horn, presumably of a terracotta animal figurine and a fragment of a legged terracotta figurine. Perhaps, these oval structures may have had some religious functions.

The second structural phase is marked by the houses of mud-walls. A large house-complex (pl. XIX) with thirteen rooms, a corridor and a courtyard on the eastern side was completely exposed. The thickness of the walls ranged between 0.70 to 1.00 m. The size of the rooms ranged from 1.60 x 1.60 to 3.35 x 4.20 m. The rooms yielded Painted Grey Ware bowls and dishes, associated grey ware sherds, *ghata-shaped* terracotta beads, bone styli and copper objects, besides 2 to 5 per cent of Late Harappan pottery. Other important finds recovered from the excavation are: bangles in sea-blue and black glass; copper bangles, rods and some indeterminate pieces; a large number of terracotta *ghata-shaped* and incised biconical beads; decorated beads of semi-precious stones and faience; and terraoctta lamps, probably used for lighting the houses.

Two skeletons belonging to Sub-period I B, were found from the habitation area. Both the skeletons were oriented north-south with head towards the north and face turned towards west. Preliminary investigation of the skeletons indicated that one of them belonged to an adult of advanced age (pl. XVIIIB) while the other was that of a child of eight to ten years of age. Surprisingly, the graves were devoid of any grave-goods.

The ceramic industry of this phase is represented by the continuance of the Late Harappan wares, in association with the Painted Grey Ware (pl. XX) and grey, red and a limited quantity of black-slipped wares. In the lower levels, however, the Painted Grey Ware showed thick painted lines. Among the designs, the more noteworthy were a Maltese Cross and intersecting circles which appeared for the first time in the Painted Grey Ware repertoire. Shapes met with in this Ware consisted of bowls, basins and dishes. Besides, a few jars and dish-on-stands, apparently copies of the Late Harappan prototypes, were also noticed.

Other finds of this Sub-period include terracotta animal figurines (pl. XXI) and anthropomorphic figures, recalling similar objects in the Gandhara Grave Culture. A large quantity of bones of cattle, sheep, goat, ram, dog and horse were recovered from different levels. It was observed that the bones of cattle from the lower levels are mostly massive, while those from the upper belong to weaker and small-sized animals, some of them exhibiting incomplete ossification. Charred bones of cattle and tortoise indicate the dietary habits of the people. The most significant find, however, is the presence of the bones of *Equus Cabalus Linn,* from Sub-period I B.

27. EXCAVATION AT KASITAL, DISTRICT KURUKSHETRA.—The Explorations Branch of the Survey, under Shri Jagat Pati Joshi, assisted by Sarvashri S. N. Jaiswal, J. R. Batra and G. Laxminarayana, conducted excavation at Kasital with a view to finding the cultural sequence.

The excavation revealed a three-fold cultural sequence, with three successive floodings of the site by the river Sarasvati. The earliest occupation (Period I) is characterized by the occurrence of Painted Grey Ware, besides a sherd of the black-and-red ware. Some shapes in red ware obtained from this period are reminiscent of the well-known Ahichchhatra 10 A type and rimless *handis. Ghata-shaped* beads of terracotta and a dagger-shaped pendant of ivory are the noteworthy finds from the Painted Grey Ware levels. Of the structural remains, mention may be made of a circular barn with 2.05 m diameter and a mud-wall with post-holes.

Period II belongs to the early historical times. The occupational deposit, however, was found to be very much disturbed by pits of the Medieval period.

Period III is represented by disturbed layers belonging to Medieval period.

28. EXCAVATION AT RAJA KARNA-KA-QILA AND MIRZAPUR MOUND, DISTRICT KURUKSHETRA.—In continuation of the last year's work *(1974-75,* p. 16), the Department of Ancient History, Culture and Archaeology of the B. N. Chakravarti University, Kurukshetra, under Dr U. V. Singh, assisted by Dr S. P. Shukla resumed excavation at Raja Karna-ka-Qila, besides conducting a small-scale excavation at a small low mound, adjoining Raja Karna-ka-Qila and locally known as Mirzapur mound, with a view to finding out the cultural equipment of the Late Harappan occupation.

Excavation at Raja Karna-ka-Qila yielded grey ware in the lowest levels, datable to *circa* 400 B.C, confirming the sequence, observed earlier, which is as follows:

Period I *(circa* 400-100 B.C.) is characterized by the occurrence of the grey ware together with a red ware. The grey ware is of coarse fabric occasionally painted on the rim with simple bands. The structural remains of this Period are represented by a fragmentary mud-wall constructed over a thick ashy deposit. Associated finds include: beads of terracotta and semi-precious stones; terracotta animal figurines; and bone points. Two identical terracotta sealings, showing *svastika,* snake, *nandi-pada* and crescent from the upper levels are noteworthy.

Period II *(circa* first century B.C. to third century A.D.) is represented by three structural phases. The walls are of either mud or mud-bricks. A hearth containing ash and potsherds and a few pits cut into the mud-platform, belonging to the third phase, ware encountered. A potter's kiln, subsequently used as a refuse pit, was also unearthed.

Period III which belonged to medieval times, is represented by a partially exposed *lakhauri* brick-built house and brick-paved lane.

The excavation at Mirzapur mound revealed three structural phases belonging to the so-called Harappan Culture. The classical Harappan shapes viz., perforated jars and beakers are conspicuous by their absence, while goblets are rare. The vases, however, are painted and have incised designs. Associated finds include: copper objects like chisels, needle, rings and a fragment *of parasu;* beads of semi-precious stones, faience and steatite; painted terracotta figurines of snake; terracotta cakes including circular and triangular ones; bangles, beads, discs, toy-cart frame, wheel with single hub and marbles of terracotta; sharpeners, pestles, querns of stone; and a large number of faience bang'es.

HIMACHAL PRADESH

29. EXPLORATION IN DISTRICT SOLAN.—During the course of exploration in Nalagarh Taluk, Shri Lalman of the Punjab University, Chandigarh, collected pottery belonging to the Harappan and the Painted Grey Ware cultures at Sabowal and sculptures representing Mahishamardini, Ganesa, Vishnu, Mother Goddess, Siva-Parvati, *mithuna,* miniature temple, etc., ranging in time from early to late Medieval period at Kanganwal.

JAMMU AND KASHMIR

30. EXPLORATION IN DISTRICT ANANTNAG.—During the course of exploration, Shri Sardari Lai Shali of the Frontier Circle of the Survey discovered remains of a medieval temple and a site yielding pottery belonging to the Medieval period at Halsidar and Shekhpur on the Vernag-Kapran road.

31. EXPLORATION IN DISTRICT BARAMULLA.—Shri L. K. Srinivasan of the Frontier Circle of the Survey, during the course of exploration discovered nine rock-cut niches in a row on the escarpment of two adjoining hillocks, five on one and four on the other, at Lashteal, opposite Kalaruch on the left bank of the rivulet of the same name. Besides, carved trefoil-arches, niches with grooves and sockets were also noticed which perhaps were intended to take the wooden

members for the triangular pediments surmounting the arches. In addition, the central niche is provided with sockets and a drain cut into the rock for doors and to drain the water respectively. The niches did not contain any carvings, paintings or images.

32. EXPLORATION IN DISTRICT JAMMU.—During the course of exploration, Shri L. K. Srinivasan of the Frontier Circle of the Survey, assisted by Sarvashri Sardari Lai Shali and R. N. Kaw, found a sculpture of an *ekamukha-linga,* 60 cm in height in a modern Durga temple near an ancient Dogra fort at Akhnur. Stylistically the sculpture is assignable to the ninth-tenth century A.D.

33. EXPLORATION IN DISTRICT LADAKH.—During the course of exploration, Shri L. K. Srinivasan of the Frontier Circle of the Survey, assisted by Sarvashri Sardari Lai Shali and R. N. Kaw, noticed bronze images of Buddha, Bodhisattva and other Buddhist deities and saints in the monasteries at Alchi, Hemis, Lakir, Phiang and Tiksi. Besides, paintings depicting the life of Buddha and *tankas,* on the walls on the monasteries, were also noticed. It may be observed that during the eighth-ninth century A.D. Tantric Lamaism was the predominant cult in Ladakh.

KARNATAKA

34. EXPLORATION IN DISTRICT BANGALORE.—During the course of exploration, Shri S. R. Rao of the Mid-southern Circle of the Survey, assisted by Shri K. P. Poonacha, located sites yielding microithic tools, including crescents, points and flakes made on quartz and chalcedony at Ragigudda near Bangalore and Devanahalli, 40 km from Bangalore.

35. EXCAVATION AT VADAGAON MADHAVAPUR, DISTRICT BELGAUM.—In continuation of the last year's work *(1974-75,* p. 17), the Kannada Research Institute, Dharwar and the Depart ment of Ancient Indian History and Epigraphy, Karnataka University, under Dr A. Sundara, resumed excavation with a view to finding out nature of the structural remains.

The excavation at Site I, on the southern side of the 33-m long parallel walls exposed earlier, revealed two independent unconnected rooms, one abutting the inner long wall near the eastern end and the other to the north of this room. The long wall is structurally later, as evidenced by the underlying eastern wall of the first room. Likewise, the western wall of the other room was found constructed over the remains of an earlier structure. After the collapse of these rooms, the debris was levelled up, and over it an extensive floor of well-rammed brick-powder was laid, which represents the last phase of the structural activity at the site.

The excavation at Site II exposed portions of well-paved brick platforms, rubble foundations, a mud-house (?) with circular brick-built wells. The house had two rooms and a verandah. The ceramic industry is represented by the usual black-and-red ware and the Russet-coated Painted Ware. Other finds include: beads of terracotta, semi-precious stones like lapis lazuli, carnelian, crystal, etc.; fragments of terracotta figurines of caprisoned horse and human heads; and coins of potin and copper of the Satavahanas and two fragmentary ones of the Kshatrapas. The Satavahana copper coins generally have bow and arrow symbols with legend *Maharathisa* in Brahmi characters. The Kshatrapa and coins bearing legend occur here for the first time.

Structures and antiquities found in the uppermost layer of compact dark brownish red earth mixed with brick-bats, belong to the last phase, datable to *circa* first century to third century A.D.

36. EXPLORATION IN DISTRICT BELLARY.—Shri S. R. Rao of the Mid-southern Circle of the Survey, assisted by Shri K. P. Poonacha, explored the right bank of the river Tungabhadra

near Hampi, and discovered a neolithic/chalcolithic site, yielding handmade pottery, lipped bowls of burnished grey ware, stone axes in various stages of manufacture and stone pounders.

37. EXCAVATION AT HAMPI, DISTRICT BELLARY.—The Mid-southern Circle of the Survey, under Shri S. R. Rao, assisted by Sarvashri B. Narasimhaiah and K. P. Poonacha, undertook excavation at Hampi, the ancient capital of the Vijayanagara empire, with a view to exposing the architectural layout of the capital city which had extended from the banks of the river Tungabhadra to the modern village of Anantasayanagudi, enclosing an area of about 17 sq. km.

Excavation in an area of 300 x 100 m (pl. XXII A), between the Mahanavami Dibba on the west and the King's Audience Hall on the south, inside the citadel, near the village of Kamalapuram, revealed a 2-m thick occupational deposit and twenty-one structures assignable to three phases. The structures exposed include moulded stone courses of plinth, stumps of massive plastered mud-walls and lime concreted floorings of once magnificent buildings. An interesting discovery was a structure (pl. XXIII) represented in two phases, south of King's Audience Hall and 50 m east of a basement of a royal mansion, noted for elephant figures on the balustrades. East of this palace structure was exposed another rectangular structure with east-west as longer axis and having rooms, hall and a verandah, connected with the palace by a passage. The overall dimension of the structure is 45x35 m. The apartments of the complex are provided with stone-cut channels along one of the walls, probably to ensure continuous flow of water. Large water-cisterns were noticed in some of the rooms which might have been used as bathrooms. Another interesting evidence which was brought to light by the excavation indicated that the second storey of the King's Audience Hall was connected by a flight of steps leading from inside the palace. The first landing was found provided with a shallow trough with an outlet, probably for washing the feet of the king. East of the palace-complex, a pavilion with twelve monolithic pillars was exposed (pl. XXIV). Another structure encountered a few metres away towards south is a brick-built enclosure (2.50 x 1.25 m) with 6 cm high walls enclosing an eight-pointed star-like terracotta stump in the centre. Thick ashy deposit found inside this structure would indicate that this might be a religious structure. An adjoining rectangular masonry cistern (pl. XXII B) with steps leading into it, was probably intended for ceremonial bath *(avabhrita-snana).* Other interesting structures exposed are a cistern of well-dressed stone masonry (pl. XXV A) and a huge tank (pl. XXV B), neatly plastered with lime mortar and having four pillars in the centre probably supporting a miniature pavilion.

The excavation revealed that from time to time the structures were enlarged or reconstructed. In the course of such an activity, one of the halls was paved with polished stone slabs, probably procured from the dilapidated structrures belonging to the earlier periods, as one of the slab bears an inscription in Kannada characters and language giving the date as the first year of the Ghalukya Vikrama year, Nala, Bhadrapada Bahula 13, Sunday, corresponding to A.D. 1076; the year referring to the first regnal year of "the Chalukya Vikramaditya VI of Kalyani recording the gift of eighty gold *lokki-gadyana* coins donated by Somesvara Bhattopadhyaya, a *mahapradana* and *dandanayaka* of the king, to two scholars. Another fragmentary record of the same dynasty was found on a sculpture in the Mahanavami Dibba, corroborating the above observation. Further, the excavation revealed that the Mahanavami Dibba was constructed in two phases (pl. XXVI A.)

While digging in the area east of the King's Audience Hall, an inscription wirtten in Brahmi characters of first century B.C. and in Prakrit language, reading *Tarasa putasa danam,* was recovered.

The ceramic industry is represented by the usual wares of the medieval times including Chinese porcelain. Other important finds from the citadel area include small stone sculptures of the deities and a panel depicting hand-cuffed persons in Persian dress along with a horse led by a dwarf (pl. XXVI B) and beads of glass and semi-precious stones.

The excavation at Vitthala temple in Venkatapura village exposed ancient bazar and the road paved with blocks of stones. Three hundred and fifty copper coins and a gold coin of Krishnadevaraya with Balakrishna on the obverse and a legend in Sanskrit reading Sri Pratapa Krishnadeva Raya on the reverse were found.

38. EXPLORATION IN DISTRICTS BIJAPUR, GULBARGA AND NORTH KANARA.—During the course of exploration, Dr A. Sundara of" the Department of Ancient Indian History and Epigraphy, Karnataka University, Dharwar, noticed ancient vestiges ranging from the Palaeolithic period to the early medieval times.

At Aihole, District Bijapur, on the bank of the river Malaprabha near Rachigudi temple, Lower Palaeolithic tools, including handaxes of quartzite, were collected. The sites at Akkaragal and Bachinmaradi in the same District and Balachakra in District Gulbarga, yielded neolithic/chalcolithic grey ware and polished stone axes, besides early historical remains.

Among the rock paintings noticed, generally executed on the facade of the natural rock-shelters, three at Aihole and four at Badami in District Bijapur, five paintings executed in red ochre representing lotus, monkey, etc., belong to the historical period. A painting noticed at Badami, beautifully executed on thin carrier of lime, representing three persons approaching a seated figure, belongs to the Early Chalukyan period. Another noteworthy painting at Badami, containing figures of animals such as dog and a bird with long thin legs, executed in black within a dull white border, and ghost-like figures, painted in black, may belong to the Upper Palaeolithic period, as indicated by the use of double colours and the features of the figures.

Sculptural and architectural remains discovered include winged goddess holding a sword and shield in her two hands with an owl beside, Jayadurga, four-handed Nagaraja with *sankha* and *chakra* in two upper arms, small temple containing Vrishabhavahana-Umamahesvara, *lingas,* of which one bore an inscription of Vikramaditya II mentioning that one Benama, the son of Devari, built the temple, *saptamatrikas* with Brahma, Vishnu, Siva carrying a *linga* from behind with Parvati, Nandi on the right and a two-handed Ganesa at Jalihal; two-handed Nagaraja holding lotuses in high relief at Huylgol; a small rock-cut Jaina cave enshrining a seated *tirthankara* with a *makuta* above the head, attended by two royal *chauri-bearers* at Benkanvari; and a small flat-roofed temple of Mahishamardini (?) at Hosa Mahukuta. The sculptures are assignable to the Early Chalukyan period.

At Gokarna, District North Kanara, several temples, dedicated to Siva in the form of *linga,* apsidal, circular and square in plan, assignable to the fifth century A.D. were noticed. The temples seem to have been renovated later. Among the sculptures, a hexagonal *stambha* with miniature Karttikeya in bas-relief (*circa* seventh-eighth century A.D.) inscribed Uma-Mahesvara, eight-handed goddess in Kalyana Chalukyan style, are noteworthy. At Uppinapattana in the same district, a *brahma-stambha,* Ganesa and Mahishamardini, all datable to the sixth-seventh century A.D. were noticed.

39. EXPLORATION IN DISTRICT GULBARGA.—During the course of exploration, Drs K. Paddayya, S. N. Rajaguru and Sarvashri M. D. Kajale and R. Korisettar of the Department of Archaeology, Deccan College Post-graduate and Research Institute, Pune, discovered late Pleistocene plant remains associated with Middle Palaeolithic tools at Wajjal, located 23 km west of Shorapur and 5 km from the Acheulian site at Hunsgi. The cliff-section, 5-m in thickness and extending to about. 50 m, is found on the right bank of the Hunsgi rivulet, a tributary of the river Krishna. Stratigraphy of the section is as follows: tufacious gravel bed, 2-m in thickness rests unconformably over the Bhima limestone bed and is overlain disconformably by a 2-m thick brownish calcareous silt. The tufacious bed is essentially a product of inorganic precipitation of calcitic carbonate in a localized pool environment of the braided Hunsgi stream, preserving dicotyledonous and monocotyledonous leaf impressions (pl. XXVII) besides yielding

numerous Middle Palaeolithic tools, viz., scrapers, flakes, waste and utilized borers and cores. On the basis of tool-typology the tufacious bed and leaf impressions can be dated to the late Pleistocene, for it is quite certain that the tool-bearing deposit was formed after the Lower Palaeolithic occupation in the river valley and during the period when the valley-morphology took its present shape.

40. EXCAVATION AT HUNSGI, DISTRICT GULBARGA.—In continuation of the last year's work *(1974-75,* pp. 19-20), Dr K. Paddayya of the Deccan College Post-graduate and Research Institute, Pune, resumed excavation in Locality V with a view (i) to identifying the limits of the partially exposed Acheulian occupation floor; (ii) to determining whether the granite boulders encountered earlier, formed part of a living enclosure; and (iii) to establishing the presence or otherwise of faunal remains in association with stone artefacts.

The excavation in the extended trenches on north and south of Trench 3, revealed floor varying in thickness between 10 and 30 cm, below the 50-70 cm thick secondary gravel. In order to find the precise lithological composition of the floor, an actual count and measurement of all stone pieces in each square was made which showed that the floor consisted of limestone rubbles, pebbles and cobbles of the same rock, granite pieces of different sizes, and other rock fragments like chert, dolerite, etc. all set in a matrix of whitish gruss derived from the *in situ* weathering of the granite. The limestone slabs as also the cobbles were transported from the immediate vicinity as raw materials for tool-making.

The limits of the living area of the floor could be determined from: (i) the distribution of artefacts, which, though practically present all over, are found to be meagre on the northern and southern fringes; and (ii) a series of granite blocks delimiting on the eastern and western ends. A number of granite blocks measuring 0.50 to 1.00 m across, seem to have been deliberately placed at the northern part of the floor in order to delimit the living area. In short, the oval-shaped open space about 70 sq. m in area enclosed by granite boulders formed the floor. The site was selected by the Acheulian man because of its nearness to the channel system ancestral to the present-day Hunsgi stream as also the assured supply in plenty of raw materials from the vicinity for the tools.

More than six hundred artefacts were collected from the floor, majority of which were of limestone. Finished tool repertoire comprised cleavers, handaxes, choppers, picks, polyhedrons and scrapers. Small fragments of haematite, recovered here, were perhaps imports for colouring purposes.

41. EXPLORATION IN DISTRICT RAICHUR.—During the course of exploration in the Raichur *doab,* Shri Ravindra Korisettar, Research student of the Deccan College Post-graduate and Research Institute, Pune, noticed sporadic occurrence of the Lower Palaeolithic tools, including handaxes and cleavers of quartzite in the Hanamsagar nullah in the Kushtagi Taluk, and a Middle Palaeolithic factory site, yielding tools made of chert, at Kammaldinni on the right bank of the river Krishna, 5 km upstream of Narayanpur Dam site.

KERALA

42. EXPLORATION IN DISTRICTS MALAPPURAM AND PALGHAT.—In continuation of the last season's work *(1973-74,* p. 18), Shri P. Rajendran, Research student of the Deccan College Post-graduate and Research Institute, Pune, resumed exploration in the valleys of Bharatha-puzha and Beypore and located sites yielding Middle Palaeolithic and Mesolithic tools. The sites are found between heights ranging from 60-98 and 121-95 m above M.S.L. The tool repertoire, recalling those from the *ten* sites in Tamil Nadu, were obtained from the higher lateritic surfaces at Cherakkalpade and Kodiparari, while at Mankara and Parli the tools were

from gravel beds and alluvial terraces in District Palghat. Middle Palaeolithic tools comprising a few choppers and scrapers were obtained from Kodiparari and Mankara. Similar tools were found at Chellur, Nilambur and Oravanpurampuzha in District Malappuram where the tools are larger and on quartz.

MADHYA PRADESH

43. EXCAVATION AT MALHAR, DISTRICT BILASPUR.—In continuation of the last year's work *(1974-75,* pp. 21-22), the Department of Ancient Indian History, Culture and Archaeology, University of Sagar, in collaboration with the Department of Archaeology, Government of Madhya Pradesh, under the direction of Prof. K. D.Bajpai, assisted by Dr S. K. Pandey and Shri V. D. Jha, resumed excavation in two trenches MLR 4 and MLR 5, confirming the earlier results.

Period I *(circa* fourth century B.c.-second century A.D.) is marked by the occurrence of black-and-red ware, represented by bowls and dishes, and red ware, largely by incurved bowls as well as vases. Associated finds include beads of terracotta and semi-precious stones, bone points, etc. Usual building material of the period was dressed and undressed stones, set in clay. The habitation appears to have been protected by a mud-wall; its exact nature whether for defence or against the flood remains to be confirmed.

Period II *(circa* third century-sixth century A.D.) is characterized by baked brick and stone structures having rammed floors. In one of the structures a twin-hearth of bricks and clay was noticed. The ceramic industry of the period is represented by black-and-red, fine-slipped thick red, sometimes with incised decoration, polished black and plain red wares. A complete black-and-red ware bowl painted with black band on the red background is noteworthy. A large number of sprinklers were encountered in this level. Other finds include: beads of stone and terracotta; points and dice of bone; and an antimony rod. Besides, a terracotta sealing, bearing the legend *gamasa kosaliya* in Brahmi characters of second century A.D., was found from a disturbed layer.

Period III *(circa* seventh century-ninth century A.D.) is marked by a spurt in the building activity both in bricks and dressed stones. Rectangular or oval stone troughs placed on stones, encountered in the excavation, were probably intended for providing drinking water to the cattle. An important structure of the period, however, was a Buddhist temple-complex built with locally available dressed stones, enshrining an image of Vajrayana on a brick pedestal. The complex, consisting of a *pradakshina-patha* and three rooms for the monks, is assignable to the period of the Somavamsi kings. The pottery of the period is represented by a mica-slipped and a golden coloured slipped red wares. Other important finds are: arrowheads, spear-heads and nails of iron; beads of glass and terracotta; and gamesmen of terracotta.

A thick ashy deposit would perhaps indicate the destruction of the site by the Kalachuris.

Period IV *(circa* ninth century-thirteenth century A.D.) marks the shifting of the habitation towards the inner part of the town. The structures were of reused materials of earlier structures. A brick-structure of eighteen extant courses, having a floor of rammed earth and stones, is worth-mentioning. Ceramic industry of the Period is represented by red and coarse wares. After the Kalachuris the site was abandoned.

44. EXCAVATION AT BHIMBETKA, DISTRICT RAISEN.—In continuation of the last year's work *(1974-75,* pp. 24-26), the Department of Archaeology, Poona University, under Dr V. N. Misra, assisted by Dr Malti Nagar and Sarvashri S. Chakrabarty, P. R. Kulkarni, Y. D. Mathpal and Erwin Neumeyer, resumed excavation in Caves III F-23 and III F-13.

In Cave III F-23, excavation was carried out both inside and outside. It was noticed that in Trenches E and F, inside the cave, layer 8 encountered at a depth of 2*70 m from the surface,

and yielding Acheulian tools was composed of reddish debris with rock fragments of different sizes in a sticky clayey matrix. The layer loses its compactness progressively from the top downwards, especially after a depth of 60 cm, below which the bed-rock was encountered. The artefacts found in this deposit show a mottled colour, the effect being more noticeable on tools made on soft yellowish quartzite, which have become fragile and even crumble. The tools made on darker quartzite on the other hand are relatively better preserved, only their surfaces being affected. This is due to extreme weathering caused by prolonged waterlogging of the deposits on the bed-rock coupled with low rate of evaporation due to the massive overhanging roof and the thickness of the deposit.

The artefacts comparable to the Acheulian industry of layers 6 and 7 were entirely on metamorphosed sandstone or orthoquartzite and comprised various types of side-scrapers, truncated blades, notches, denticulates, end-scrapers on blades, a small number of handaxes and cleavers, besides a large quantity of blades. Unusually large and heavy cores in considerable numbers represent a distinguishing feature; yellowish quartzite for flake-tools and darker hard variety of quartzite for handaxes and cleavers were preferred. Neither choppers nor chopping tools were encountered.

In Trenches H and I, in the middle of the cave, layer 5, red in colour, belonging to the Acheulian levels and less compact than that encountered in the inner part of the cave, was exposed to a depth of 25 cm where a rich working floor (pl. XXVIII A), yielding artefacts was met with. Flakes in an extremely fresh condition predominate in this deposit. Other tool-types are a few handaxes, cleavers, side-and end-scrapers, notches and denticulates.

The excavation outside the cave in Trenches J, K and L, to a depth of 20 cm, from a depth of 1 .35 m to 1 .55 m below surface, revealed a reddish soil of lesser shade than inside. This deposit consisting of more clayey material yielded only Middle Palaeolithic tools.

In Cave III F-13, four trenches G, D, E and F, each measuring 2 sq. m, were excavated to a depth of 55 cm with four layers yielding Mesolithic artefacts. In first three layers, a number of circular ashy patches of 25 to 30 cm diameter were observed. In the first two strata a few fragments of plain red and grey ware sherds were also picked up. Tool components, fashioned out of chalcedonic silica, consisted of backed and/or obliquely truncated blades, points, crescents and triangles, and differ distinctly from those from Cave III F-23 in the total absence of large blades.

In square E2, layer 2 yielded a human burial (pl. XXVIII B) in a badly preserved condition. The body, laid in south-west to north-west direction with its head on the south-west and face turned towards south, was interred in a flexed position with the legs folded under the pelvis and the lower left arm resting on the abdomen. From this and the position of the vertebral column it may be assumed that the body was placed on its right side. Bones of feet and hands were found missing, while the skull was badly crushed due to the overlying weight of large stone slab. The remains belonged to a young man of not more than twenty years. In square F3, another burial with a few fragments of human skull was noticed in layer 3.

45. EXPLORATION IN DISTRICT RAJNANDGAON.—During the course of exploration, the Department of Ancient Indian History, Culture and Archaeology, University of Sagar, under the direction of Professor K. D. Bajpai, brought to light several medieval sites, datable between the ninth and thirteenth centuries A.D. A noteworthy discovery is of a Siva temple at Bhoramdeo, 13 km from Kawardha, with its outer walls carrying sculptures of the deities of the Hindu pantheon, *mithuna* figures, etc. Besides, a seated figure of a king with folded hands and surrounded by his three queens, in black basalt, bearing an inscription of the eleventh century A.D. would perhaps indicate that the temple was built by the same king. From the iconographic point of view, images of Bhairava and Uma-Mahesvara are important. Three more temples in a dilapidated condition and a few *sati* stones, showing Kalachuri impact, were

also found. Another temple, dedicated to Siva, at Gandai, 25 km from Khairagarh on the Khairagarh-Kawardha road, was found to have been adorned with images of Hindu deities in the niches. The lintel and door-jambs of the temple bore the images of the five Pandava brothers, Draupadi and Kunti with their names inscribed in characters of the fourteenth century A.D. along with that of the sculptor.

46. EXPLORATION IN DISTRICTS REWA, SATNA AND SIDHI.—The Institute of Archaeology, University of Allahabad, under Professor G. R. Sharma assisted by Dr R. K. Varma and Sarvashri V. D. Misra, B. B. Misra, D. Mandal, Jai Narain, Ranjit Singh and J. N. Pal, explored the valleys of Adva and Gurma in District Rewa, Gopad, Rehi and Narkuni in District Satna, and Lilji and Gupta-Godavari in District Sidhi. In the exploration of the last mentioned District, Sarvashri D. C. Das Sarma and S. Biswas of the Geological Survey of India accompanied the party. Apart from these valleys, the tributary nullahs of the river Son, viz., Ankara, Bari Naki, Bira Khand, Jokhaha, Kharbara, Khudheri, Phulwaria and Podarahia were also subjected to intensive exploration. The area explored is approximately 3000 sq. km, stretching from Ghorhat in the west, Bichhi in the east, Kaimur in the north and the river Gopad in District Sidhi in the south. The exploration brought to light a number of Stone Age sites besides four megalithic sites.

The terraces on the river Son were noticed in the localities covered by the Jogdaha Bridge, Shihawal, Rampur and Nakjhar Khurd (pl. XXIX), the earliest and highest being of the Pleistocene period, and the rest being of comparatively recent origin. The oldest terrace is disected and contains multiple pedalogical units. The river Son, flowing through the soft shale, has cut it so deep as to form high cliff-sections. In the earlier times, the river was flowing at a considerable height as evidenced by the presence of erratic boulders lying between its left bank and the toe of the first terrace near Shihawal village. It was also observed that high-cliff section is a marked feature not only of river but also of its tributaries, the section being 38 m in height at places. The section is divisible into the following geological units (from bottom upwards).—The Son Cemented Gravel I of 1-00-m thickness, recognized by a hard conglomerate of fragments of Vindhyan rocks, cemented partly in iron and partly in lime, grey in appearance, occurs at least in five localities viz., Shihawal and Pawaria, on the left bank and Kakjhar, Kunjhun and Kuteli on the right bank, and happens to be the oldest resting directly on the bed-rock; a long erosional period followed by a red silt or sand varying in thickness from 3 to 16 m, highly weathered, whose undulating upper surface bears evidence of erosion; cemented gravel or coarse sand, designated as Cemented Gravel II, of varying thickness rising to a height of 5 m; the coarse sand of younger deposition with maximum thickness of 15 m, stratigraphically, this deposit and the Cemented Gravel II belonging to one and the same unit; Lime Concretion 1, which occasionally forms a hard pan, ranging in thickness from 25 to 50 cm, this being the yellow silt of 3-m thickness; Lime Concretion 2 of 5 cm thickness succeeded by yellow silt divisible into three—brownish, blackish and yellowish silts—totalling to a thickness of 6 m; Lime Concretion 3 of 3 m thickness; yellow silt of 2 m thickness, found in a section in Baghore locality; and black soil, tending towards more greyish with small iron nodules of varying thickness ranging from 75 cm to 1.75 m.

The stratigraphy of the cliff-section observed is: dark grey soil with iron-concretions (pedalfar unit); yellow silt, pedocalic unit 3; yellow silt; pedocalic unit 2; yellow silt; pedocalic unit 1; coarse-grained unconsolidated sand; erosion; red silt and sand; erosion; Son cemented conglomerate; unconformity; and Vindhyan bed-rock.

The Stone Age of the Son valley comprised Lower, Middle and Upper Palaeolithic, Mesolithic and Neolithic industries. Fifty-seven Lower Palaeolithic sites including five factory sites, situated on the slopes of medial ridge between the Son on the south and Kaimur on the north, were located. The tools (pl. XXX) consisted of handaxes, cleavers and scrapers on quartz

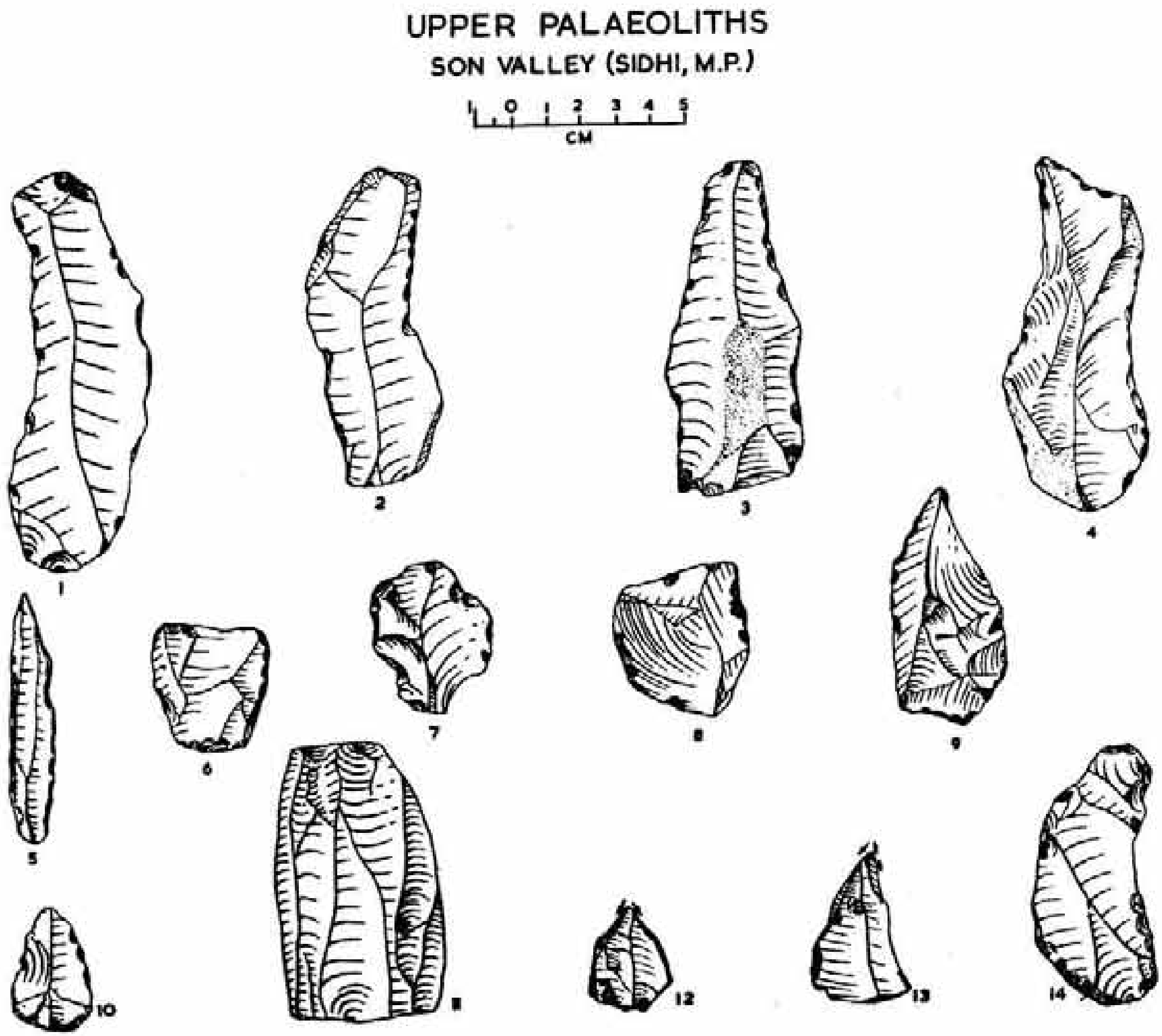

UPPER PALAEOLITHS
SON VALLEY (SIDHI, M.P.)
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9
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13
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FIG. 2

and cherty flint. Pebble tools and heavy handaxes are conspicuous by their absence. It appears that the tools were made on flakes and are of the evolved Acheulian types. In the stratigraphical context they are from the Cemented Gravel I at the Baliar Bargana, Barbasa, Dudhmaiiia, Nakjhar Kalan, Nakjhar Khurd and Panwasia.

The Middle Palaeolithic sites, distributional pattern of which is conditioned by the availability of raw material, eighty-four in number including twenty-four factory sites, are on either bank of the river on the slopes of medial ridge or on the southern foot of Kaimur range. The tool repertoire include various types of scrapers, points, blades and borers, made on chert, quartz, quartzite, jasper, etc., and are primarily flake tools. The flakes show Levalloisan technique. The tools were found in the Cemented Gravel II at several places especially at Baghor, Baliar, Dhobanahi, Koldar, Nakjhar Kalan, Patpara, etc.

The Upper Palaeolithic tools (pl. XXXI), consisting of scrapers, long blades, blunted backed blades, giant lunates, points, borers and burins on chert, jasper, etc. (fig. 2), were collected from seventy-eight sites including thirty-nine factory sites, the location of which being similar to those of the two previous industries. Blades, forming the single major tool-type, longer than the Middle Palaeolithic blades, of thinner section and having almost parallel sides seem to have been obtained through pressure technique as seen by the fluted cores.

The Mesolithic artefacts, comprising varieties of scrapers, blades, blunted blades, lunates, borers, points and triangles (rare and only in a few sites), fashioned out of chert, chalcedony, quartz, jasper and carnelian, were found at seventy-seven sites, of which twenty-eight are factory sites.

The sites showing neolithic affinity are Rampur and Nakjhar Khurd, yielding two neolithic celts on basalt, in the Son valley and Kunjhun, on the right bank of the Son, yielding corded ware comparable to that from Koldihwa on the Belan, together with a mace-head and microliths. The site at Kunjhun is also heavily eroded, retaining only basal layers of the neolithic culture. The neolithic association of the corded ware noticed in Assam, Koldihwa and Kunjhun adds a new dimension to the culture of the region, warranting further confirmation.

Megalithic burials represented by cairn-circles were noticed at Kasuli, Patpara and Rampur and cist-burial at Baburi. All the sites yielded fragmentary bones and pottery comparable to that of Kotia on the Belan as also iron slags.

Most significant evidence of the exploration in the Son and Gopad valleys is, however, the animal fossil-remains (nearly five thousand in number) found particularly at Baghore, Bari Nakhi, Birakhand, Dhobahi, Laowar, Medwa, Pawairah, Podarahia and Ram Nagar on the Son and Bardi and Khairpur on the Gopad. The valleys of the tributary nullahs were more fossiliferous than the main river which may perhaps be due to erosional activity of the river. Most of the *in situ* fossils came from Cemented Gravel II, while a few comparatively lighter ones were extracted from the three concretionary horizons. These belong to a time, ranging from the Upper Pleistocene to the early Holocene. Animals represented are *Bos,* Bison, *Bubalis,* Hippopotamus (pl. XXXII A), *Equus* (pl. XXXIII A,) *Gaviatis* (pl. XXXIII B), antelope, *Sus, Elephas* (pl.XXXII B) and Nilgai, besides tortoise shells.

Besides, exploration in District Satna brought to light a number of Lower Palaeolithic sites, of which Maihar group, represented by Maihar, situated 66 km from Rewa on the Rewa-Jabalpur road, and Gupta-Godavari, 20 km from Chitrakuta, falling within the revenue jurisdiction of Chaubepur are noteworthy.

The Maihar site, extending from the Sarada temple on the top of an outcrop on the west to the teak plantation on the east, yielded tools comprising cores, flakes, handaxes, cleavers (pl. XXXIV A), scrapers (pl. XXXIV B), etc., from the surface of the decomposed shale bed, as also from the river bed and a river-section on the north. Majority of tools, both finished and in different stages of manufacture, come from the shale bed.

A section of an ancient nullah, joining the Lilji to the north of the teak plantation, revealed that the earliest deposit consists of four distinct layers of a boulder conglomerate resting on shale, with round stone pieces of different sizes, constituting the conglomerate and yielding a few flakes, cores and finished tools. This conglomerate is more extensive than that in the vallyes of Belan and Son, i.e., Cemented Gravel I. It appears that erosional activity here was not as strong as on the other rivers. The industry may be termed as evolved Acheulian.

47. EXPLORATION IN DISTRICT SEHORE.—In continuation of the last year's work *{1974-75,* pp. 22-24) in District Hoshangabad, Sarvashri B. P. Bopardikar, P. R. K. Prasad, A. J. Nambhiraju, S. K. Gulrandhe and K. S. Venkataramaiah, under the guidance of Dr K. D. Banerjee of the Prehistory Branch of the Survey, conducted exploration in the Narmada valley between Shahganj and Rehti in Budhni Taluk, covering the middle course of the Narmada and its northern affluents. A number of Lower Palaeolithic and Mesolithic sites, rock-shelters with paintings, *stupas* and habitational sites, along the southern fringes of the Vindhyas were discovered. The most important among these is the discovery in one of the rock-shelters, locally known as Saru-Maru-ki-Kothadi, of two Asokan inscriptions, of which one is a version of the Minor Rock Edict I.

The courses of the northern affluents joining the Narmada are of shorter length and none exceede 32 km. Majority of the Stone Age sites are located between contours 304 to 334 m. The peneplain appears to be the earliest here as confirmed by the evidence at Adamgarh, Dhamasa and Hirapur Khadan. The general stratigraphy particularly of Banganga, Bhagner and Kalladoh, partly similar to that of Hirapur Khadan *{1974-75,* p. 23) is as follows from top downwards: brownish red silt, yielding microliths, sharp disconformity; yellowish red concretionary clay yielding Middle Palaeolithic tools; disconformity; laterites; disconformity; and Vindhyan sandstone, quartzite or shale.

Lower Palaeolithic tools represented by handaxes, cleavers, choppers, scrapers, discoidal cores and flakes were found at Joshipur, Mou (Moukalan), Pandadoh, Pangoraria, Pirikarar, Shahganj and Unchakhera.

Exploration of the area has gained further importance through the discovery of two noteworthy sections, one near a rock-shelter at Mou and the other at Pirikarar. The stratigraphy at Pirikarar near Kalladoh nullah from bottom upwards is as follows: bed-rock consisting of sandstone, quartzite or shales; laterite blocks; loose to compact implementiferous (Acheulian) pebble-bed; yellow concretionary clay, capped by brownish silt on the top. The total height of the section is about 9 m. Elsewhere in a nullah near Bhagner and Unchakhera, a hard concretionary conglomerate was found resting over the bed-rock.

The other section is near the rock-shelter on an isolated hillock at Mou, very close to the river Narmada. On the slopes of the nullah, the section showed a thin gravel, resting unconformably over the bed-rock. Above the gravel-bed is a deposit of red clay. From the junction of red clay and the gravel bed, a number of small to medium unifacial chopper-scrapers of pebbles, a broken ovate, discoidal scrapers, flakes and cores, belonging to an interesting industry, were collected. A thin deposit of red earth at the top of the hill near the rock-shelter was found to be tool-bearing. The tools, all microliths, comprised flakes, flake-blades and cores. Similar stratigraphy was noticed at other rock-shelters also, viz., Joshipur, Pangoraria and Unchakhera.

As many as forty-five rock-shelters, formed due to differential weathering, and with or without paintings were located between Shahganj and Pangoraria. Generally, these shelters face north-east along the escarpment. Tentatively, they fall into four groups and are named after the nearest village. They are: Joshipur; Mou and Talpura; Unchakhera; and Bayan and Pangoraria groups.

The Joshipur group, facing the village, consists of eight shelters, five on the slopes and

three at the top along 584 m contour. Paintings in red, orange, yellow and white ochres (pl. XXXV A) are sometimes found superimposed on one another. Common scene depicted is the deer-hunting. Besides, elephants, spotted deer in white ochre, antelopes with infilled geometric and non-geometric designs are the animals represented. Hunters, clad in skin-cloth, appear to be warriors of late periods. Superimposed drawings are in different styles. In some of the shelters Lower Palaeolithic and microlithic tools unrelated to the paintings were found.

Among the second group, two shelters at Mou are on the isolated hillock on the left bank of the Narmada near Barkheri and are extensively painted in red ochre portraying deer, antelopes, hunting scenes, etc. Two others at Talpura, associated with a stupa-complex, 5 km away from Mou bear paintings similar to Mou besides spotted deer, horses and fighting warriors. Here, the paintings are often superimposed and are similar in style to the ones noticed earlier in other shelters.

The Unchakhera group, found in the forest area near Bhagnar-nadi on the slopes of low lying hills consists of three shelters, two of which yielded Lower Palaeolithic artefacts and microliths on the floor deposit. One natural arch, formed due to differential weathering, having paintings in red ochre (pl. XXXV B) similar to Joshipur caves, was noticed here.

The Bayan and Pangoraria complex is the most important group, since here, besides rock-shelters, several stupa-complexes, habitation sites and two Asokan inscriptions were brought to light. The Bayan-complex consists of fifteen shelters situated to the north-west of the village, around an ancient tank. In one cave, three gaint-sized fish-like animals, two vertically and the third executed horizontally below the verticals drawn boldly in red ochre with infilled geometric designs were found (pl. XXXVI A). Some caves bear symbols, faded inscriptions, stone benches, etc. Paintings belong to the later Buddhist period.

In the other group, consisting of twenty shelters, on the escarpment and south-western slopes of the range, in the vicinity of Pangoraria, paintings fall into three categories. Buddhist symbols, viz., *svastika, triratna, kalasa,* volutes, concentric circles, horse-riders (pl. XXXVI B), monkeys, etc. (pis. XXXVII-XXXVIII). The most important among these is the one known as Saru-Maru-ki-Kothadi which comprises a monastic complex, situated 4 km west of Bayan and 3 km north of Pangoraria, in the forest area, 500 m from the Budhni-Rehti road. The cave is on the southern slopes at a height of 21 m in 304 m contour. The main shelter, Saru-Maru-ki-Kothadi contains two Asokan inscriptions: one is aversion of the Minor Rock Edict I, found in fourteen other places while the other records the visit of Piyadasi as Maharajakumara to the site. Along the slope of the hill are a number of platforms at various levels with rubble revetments (pl. XXXIX A), each housing a *stupa* of dressed stones. About a dozen such *stupas,* with their diameters ranging from 2 to 16 m, were noticed. Further, above the shelter along the slopes, twenty-one *stupas* (pl. XXXIX B), some on platforms, along with a few monastic cells and a water trough within rubble enclosures were located. On the ground level, in front of the site, was the *maha-stupa,* about 76 m in diameter and a *pradakshina-patha.* A trial trench in the centre of the *stupa* revealed its filling.

To the west on the slopes of the hills, two more ^«pa-complexes within stone enclosures were noticed. On the eastern ridge was noticed a long shelter measuring 76-20 x 10-60 m, locally known as Bawanpaga, whose frontage is covered with rubble wall.

Most of the shelters bear paintings in red ochre, depicting hunting scenes with deer, buffalo and other wild animals and human figures clad in tribal garments. Buddhist affinity is noticed in the symbols of *svastika, triratna,* etc. Interesting among the paintings at Bawanpaga is the group of monkeys crossing a stream in a row when chased by a hunter shown at the rear discharging an arrow. Some paintings are in yellow and white.

In the locality known as Nachni-ki-talab, on the east of the site down below, an earthen

dam across the Babar nullah creates a reservoir for the perennial supply of water. To the west is a spill channel of the reservoir. The entire site occupies an area of about 2 sq. m.

Besides, two more stupa-complexes were found amidst rock-shelters, one near Bayan and the other at Talpura. Ten rock-shelters of smaller size were located towards the north of the village Bayan. A few of them bear paintings of Buddhist symbols in red ochre. The floors of some of the shelters are levelled uniformally, and in one case at stone slab, serving as a bench, was also noticed. A bigger cave, north of the Bayan tank, and similar to the Bawanpaga, contain a few paintings among which pictures of peacocks are well preserved. About 150 m to the east of the tank, on the slope of the hill, the lower base portion of *brick-stupa* was noticed. Adjacent to it is a platform bound by rubble wall.

The *Talpura-stupa* site is near Budhni, 500 m to the west of the railway tunnel towards Bhopal. A pair of shelters, located at about 91-44 m above ground level on the southern slopes of the range, are replete with paintings portraying both primitive hunting scenes and later designs. The theme of the painted scenes indicate that these shelters were also visited during modern times as evidenced by gun-bearing soldiers wearing hats. The frontages of these rock-shelters seem to have been covered with rubble walls with entrances recalling similar shelters of the Saru-Maru complex.

To the east of the above complex and at a distance of 20 m, were noticed two *stupas,* one bigger with 21 m diameter and the other smaller (pl. XL A) with 10 m diameter, within separate enclosures and adjoining each other. Comparatively well-preserved, they are of dressed stone dry masonry and stand to an extant height of 2 m. The *stupas* are surrounded by 1.0 m wide terrace and 1.50 m in height, with steps. A paved pathway (200x2 m) leads to the site from the ground level (pis. XL B-XLI A). A stone with a mortice for the shaft of the *chhatra* and a 21-cm corner upright having holes for fixing railing stones, perhaps of the *chhatra,* were found *in situ.* Besides, a stone slab, bearing an inscription in Asokan Brahmi characters, was collected from the village (pl. XLIB). It may be noted that the central portion of the *stupas* has been systematically plundered.

Budhni, near which the Talpura *stupa-complex* is situated, is perhaps the corrupted form of the ancient name *Buddha-nivasa.*

South of the Bayan and Saru-Maru caves, a flourishing metropolis might have existed on the bank of the river as evidenced by two huge mounds within a distance of 10 km with cultural debris rising to a height of 10 m. The one opposite Bayan, is about 2 km long and seems to be the ancient Nemavati Nagari, over which the modern Ninor (probably the corrupt form of the ancient name) stands. The site opposite Saru-Maru is Savatpur. Perhaps both formed a single unit in ancient times; at present they are separated by nullahs and the Pathoora village.

Antiquarian remains found on the surface and from the exposed sections indicate an almost continuous occupation from the Mauryan times to the Muslim period. From the top of the mound were collected Muslim Glazed Ware with a few grey and black ware sherds. Immediately below this level, were found pottery (both red and black ware) bangles, beads, weights, querns, storage jars and brick structures. Antiquities pertaining to the earlier period include Red Polished Ware of medium to thin fabric and black-and-red ware besides Northern Black Polished Ware. This seems to be the major occupational deposit. Bricks of the size 61x21 x 75 cm were also found. The ceramic evidence, taken together with the Asokan inscriptions, would take the antiquity of the site to the third century B.C.

48. EXCAVATION AT BESNAGAR, DISTRICT VIDISHA.—In continuation of the last year's work *(1974-75)* the Central Circle of the Survey resumed excavation at the site with a view: (i) to assessing the nature of the 1-50 km long fortification wall on the western side; and (ii) to confirming the overlap of the chalcolithic and the Painted Grey Ware cultures, noticed earlier.

The culturel sequence, obtained this season, was similar to the one found earlier, except that no chalcolithic pottery or Painted Grey Ware was encountered.

The excavation across the fortification wall, which protects the western side of the city (the other three sides being encircled by the rivers Betwa and Bes) revealed that it was constructed of boxes of rubble walls of 1-0 m width, filled with small rubbles, brick-bats and pebbles. The basal width of the fortification wall was 35 m. A number of large-sized stone balls, weighing 10 to 15 kg, probably used as missiles to be hurled against the enemy, were found during the excavation. The fortification wall is assigned to second century B.C.

Five cultural periods, ranging from pre-Mauryan to the early Medieval were recognized during this season's excavation.

Period I, belonging to pre-Mauryan to Mauryan times, is distinguished by the occurrence of the Northern Black Polished Ware, black slipped, black-and-red and plain red wares. A few sherds of the Northern Black Polished Ware were found revetted with copper nails. Structural remains consisted of ring-wells, stone drains and bricks with semi-circular holes (pl. XLII A). Overlying a debris of conflagration were found rooms built of coarse and semi-dressed stones and also mud-walls. Other antiquities consisted of iron objects, punch-marked and cast coins and a few terracotta objects.

Period II, belonging to Sunga times, is characterized by the absence of the Northern Black Polished Ware and black-and-red ware. The other ceramics of the previous Period, however, continued during this Period. Small circular coins, probably of Malava *gana-rajya,* were also found. The fortifications appeared in this Period. A retaining wall of random-rubble with fifteen courses, having paved floor inside, was also encountered.

Period III, representing Naga-Kushan period, is marked by the presence of typical conical bowls, sprinklers and painted black-on-red, plain red and decorated wares. Associated finds include iron objects, terracotta beads and human and animal figurines, besides a few Naga coins.

Period IV, belonging to the Kshatrapa-Gupta times, is characterized by red and black-and-red wares, Kshatrapa coins of silver and copper, iron objects, beads, ear-ornaments, bangles and stone objects.

Period V, representing Medieval period, is marked by a thin deposit with red and coarse grey wares and a few sculptures, including that of a beautiful female torso.

The excavation at the temple site, BSN VII (pl. XLII B), brought to light a few sherds of the Northern Black Polished Ware overlying the natural soil. Three finely-dressed square stone blocks with mortice holes in the centre, perhaps to carry the pillars *of mandapa* in front of an unexposed temple were encountered. The associated stone-floor is datable to the period of first century B.c.-first century A.D. By the side of a rubble platform a damaged octagonal pillar sculptured with *makara* design and assignable to the Sunga period was found reused. Evidence of pre-existing Siva temple, which might have continued till ninth-tenth century A.D., was also noticed.

MAHARASHTRA

49. EXCAVATION AT DAIMABAD, DISTRICT AHMEDNAGAR.—In continuation of the last year's work *(1974-75,* pp. 29-31) Shri S. A. Sali of the South-western Circle of the Survey under the guidance of Shri M. N. Deshpande, and assisted by Sarvashri M. V. N. Krishna Rao, D. M. Kulkarni and V. B. Mathadhikari, resumed excavation at Daimabad with two-fold objectives in view: (i) to ascertaining the stratigraphic sequence of the chalcolithic phases; and (ii) to exposing horizontally the structural remains of the Jorwe Culture. The excavation in Trench CZ 61 revealed a 4-m thick deposit, divisible into five phases.

Phase I is characterized by the occurrence of the Savalda Ware with its distinct painted designs. Medium to coarse in fabric, the ware is made on a slow-wheel and is treated with a thick slip in varying shades of brown, chocolate, pink and red which during firing has developed crackles. Excepting fish and the plant motifs other designs are in red ochre; the design repertoire (pl. XLIII A) includes vertically arranged single and double rows of arrowheads, simple arrow, antennae ended arrowheads, plants, crane-like birds, groups of fine radiating lines and horizontal bands. The shapes, though limited, consist of *handis* and vases. Other ceramics of the phase include burnished grey, thick coarse and black burnished wares. The burnished grey ware is of coarse gritty fabric, with a burnished surface in shades of grey, brown and pink. The thick coarse ware, mainly represented by storage jars, is of coarse gritty fabric and is found in pink and brown shades. Vases of this ware are handmade, occasionally splashed with a wash and are decorated with incised oblique lines on the top of the rim and horizontal applique bands of finger-tip pattern on the body. The black burnished ware is handmade, medium to coarse in fabric and is treated with a thick slip which shows a lustrous surface. Associated finds of this Phase include blades of chalcedony and a spindle whorl.

Phase II, termed as Late Harappan, indicates the arrival of new people. The distinctive ceramic (pl. XLIV A), a sturdy black-painted red ware, differing completely from the Savalda Ware in technique, surface treatment, pigment of painting, designs, etc., shows close similarities with the Late Harappan red ware found in the explored sites of District Dhule and Gujarat. Made out of a well-levigated clay, this fast wheel-thrown ware has a brick-red core with a metallic ring. The design repertoire (pl. XLIII B) consists of trellis, oblique lines between horizontal bands, plant-like motifs, loops and horizontal bands on rims, neck and shoulders. The associated wares consist of the burnished grey, thick coarse and black burnished wares which continued from the previous Phase. The other finds of the phase include a terracotta spindle whorl, a sharpener, chalcedony blades and fluted cores.

A noteworthy discovery of this Phase was a burial (pl. XLV A). The grave-pit was ovoid in shape with its bottom prepared in two stages: the first comprising well-rammed mud-brick bats, occasional pebbles and clayey earth and the second of a spreading of clay, mixed with fine gravel and burnt clay lumps, the surface being plastered. The sides of the pit were lined with mud bricks, leaving enough space for the interment of the body. The body was laid on the plastered bottom in an extended fashion, with its head towards north and face tilted towards left, covered with fibrous plant resembling hemp, remnants of which were still sticking to the bones. The filling was made up of earth mixed with mud-brick bats, to form a tumulus over the grave, with a stone planted at the head on the right. The size of the mud bricks measure 32 x 16 x 8 and 28 x 14 x 7 cm (ratio 4:2:1) recalling Harappan bricks at Kalibangan.

Phase III again marks the arrival of new people, using black-painted ceramics of cream and buff wares, akin in fabric, surface treatment and painted designs to the black-painted red ware of the Malwa Ware, represented at Prakash IA and red ware of Bahal IB. This wheel-thrown ware is mostly of medium fabric with a light brick-red core, occasionally grey and black due to differential oxidizing under firing. The slip, mostly in the nature of self-slip, is predominantly cream and buff. The design repertoire comprised variations of rows of cross-hatched diamonds between horizontal bands, lattice patterns, cross-hatched elongated triangles, cross-hatched ovals, opposed loops, horizontal bands on the rim, neck and shoulder. The shapes (pl. XLIV B) met with in this ware include varieties of jars, vases, carinated *handi-types,* cup or bowl, etc. Besides, a burnished grey and thick coarse wares, similar to those of the previous phases are also found. Some of the platters and bowls in the burnished grey ware are slipped and burnished on the inside, while on the outside only a wash is given. Types include lids with a variety of knobs in the inside, platters, bowls, varieties of vases including carinated ones, etc. The knobs of the lid are painted in red ochre. The thick coarse ware is decorated with applique horizontal bands, herring-bone patterns, finger-tips and incised chevrons. A rectangular or

square vase with straight sides bearing finger impressions is a singular type in this ware. Graffito mark is found on some potsherds. Associated finds of this Phase include a spindle-whorl, chalcedony blades and a few bone points.

Phase IV is represented by a superior black-painted ware designated as the Malwa Ware. It is of medium to fine fabric, well-fired and treated with a thick slip showing shades of red, orange and pink. Painted designs, besides dog, include geometric patterns, viz., vertical strokes within horizontal bands, cross-hatched diamonds, obliquely hatched triangles and opposed pairs of oblique lines. Shapes represented are vases and bowls. The other two wares are the continuation of the preceding Phases. Other finds obtained from the deposits of the Phase comprise chalcedony blades, fluted cores and a few round stone hammers.

Phase V is designated as the Jorwe culture, and the structures belonging to this Phase were exposed horizontally. The ceramic industry of this Phase is represented by the black-painted Jorwe Ware, burnished grey and thick coarse gritty wares. Shapes represented in the Jorwe Ware are funnel-shaped spouted vases, *lotas;* carmated bowls-on-stand. high-necked jars and cylindrical vases. The painted designs in black pigment include geometric, floral and faunal motifs, including human representations. The shapes in grey ware include lids with or without knob, dish-on-stand, *kunda,* square lamp-stand, vase with flared-out rim mainly used for burials. Those in the thick coarse ware, profusely decorated with applique and incised designs, consist of storage jars, dough plates, hot plates, spouted vase, etc.

The structures in the upper levels of this Phase a-e poorly represented, perhaps due to the damage by flooding of the river Pravara; evidence of two such flooding was observed. A platform (4.0 x 3.5 m) of yellow clay with a 0-75-m broad channel-like depression on its east and north, was exposed. On this platform, a few potsherds and a sun-baked jar and a double urn-burial were found in the south-eastern part. Pertaming to the same level were found several mud strips either parallel or oval (pl. XL VI A). Similar hardened strips were also exposed during this last season. Excepting one, most of them are badly damaged. The best preserved one, ovoid in form and oriented east-west, measured 3.90 x 3.65 m. The width of the strips varied between 60 and 75 cm. Joined to this on the north, two parallel strips, 75 cm wide, plastered perhaps with cow-dung, were found running north-south. Within the oval enclosure, particularly on its south, were found number of pots, consisting of lata-shaped vases, bowls including carmated ones, dish-on-stands of grey ware, handmade jars, tubular funnel-shaped vases and high-necked black-painted jars. Besides, clods of burnt earth bearing reed-marks, copper bangles, kept inside pots, shells, long blade of chalcedony, bone-points and two broad ribs of animals, ground along the edges as also alone the ends, were found. In the lower level, were found a number of floors mainly in patches, with post-holes, ashy patches and fragmentary pots. The post-holes made no definite plan. On one of the floors a grooved stone, possibly a grinding stone was found. In the deposit of this level were found impressions of hoofs and human feet.

A plan of a rectangular house of mud-walls of this Phase was exposed in the next below level. The house measures 8.50 x 5.00 m with 15 cm thick walls, thinly plastered on both sides, the outer having, in addition, a thin coat of lime. Inside the house were found a couple of sun-baked jars, besides pieces of plaster with reed-marks. Rammed floors, post-holes, circular pits, a storage jar, a huge saddle-quern (?) and an oven (pl XLVI B) were encountered in the area around this house.

Eleven burials, one extended and the remaining of double-um, were encountered in this Phase. The extended burial, oriented north-south with the bones of the feet missing, was found in a badly damaged condition. The grave furnishing consisted of *lota-shaped* vase, carmated bowl and a portion of another vessel, kept near the head. The urn-burials are similar to the ones from other sites of the same culture. However, one burial (no. 7) yielded an important evidence of plant remains which are understudy. The body, perhaps of a child, was interred in double urns placed mouth to mouth in a pit oriented north to south (pl. XLV B). The skull was found kept

in a carinated bowl, around which were found twigs of plants. Besides, a carinated bowl and a *lota-shaped* vase were also found. A portion of the plant was also found inside the pit *in situ. A* few tiny disc beads of bone were found close to the neck.

A preliminary study of the plant remains found elsewhere in this Phase by Shri Kajale of the Deccan College Post-graduate and Research Institute, Pune, revealed that wheat, barley, rice, *ragi,* safflower, *jowar,* gram, peas and lentil were cultivated. The large number of animal bones indicate that meat formed an important part of the diet of the chalcolithic people. The animal skeletal remains belonged to sheep, goat, cattle, horse, buffalo, dog, tortoise and fish.

Stone tools encountered in this Phase include parallel-sided blades, fluted core, penknife blades, lunates, crescentic points and trapezes. A noteworthy find consists of a parallel-sided blade found fixed in the cavity of flat rib bone. The available length of the bone piece is 2.5 cm, while that of the blade is 2.3 cm. The hafting, without any trace of adhesive, was done in such a manner as to leave only 1 mm as the effective working edge. Besides microliths, a polished stone axe from the topmost level, beads, shells, sling balls, hammer-stones and saddle querns were also found. Other objects encountered in this Phase include terracotta animal figurines including humped bulls and female figurines, toy-cart wheels of terracotta and an oval-shaped lamp.

50. EXPLORATION IN DISTRICTS AURANGABAD, BHIR, NANDED, OSMANABAD AND PARBHANI.— In continuation of the last year's work *(1974-75)* Professor R. V. Joshi, Drs S. N. Rajaguru, G. G. Majumdar, R. S. Pappu, G. L. Badam and Shri M. D. Kajale of the Deccan College Post-graduate and Research Institute, Pune, resumed exploration in the central Godavari basin of the Marathwada region to understand the Quaternary history and to assess the prehistoric potentialities of the region. The survey yielded Middle and Upper Palaeolithic sites, fossiliferous strata, chalcolithic and early historical sites.

The most important discovery near Paithan was the occurrence of Middle Palaeolithic tools in the old river bed of Godavari, lying at an elevation of about 20 m above the present river bed. These artefacts seem to be the oldest among the Middle Palaeolithic artefacts (older than 40,000 years B.P.) ever reported from this region. Similar evidence came from the vicinity of Paithan at Chankawadi and Vadoli. Extensive collection of Middle and Upper Palaeolithic tools was made from the stratified sites at Akhatwada and Shankhtirth. Besides, tools were collected from bed or the river Godavari at Gangakhed, Manjlegaon, Mungi, Rahegaon, Rakshasabhuvan and Shankhtirth. Factory sites of the Middle and Upper Palaeolithic industries were discovered at Bhokar and Kivala. The rich collection of animal fossils was made from the Late Pleistocene alluvial deposits of the river Manjra at Dhanegaon, Ganjapur, Tadul and Wangdari. Besides, fresh water shells were also collected from these sites for C-14 dates. A chalcolithic site was located at Ramtirth on the confluence of the Godavari and Veerbhadra rivers. A number of Satavahana sites were also noticed in this region and variety of charred grains like wheat, rice, *jowar, bajra,* etc. were collected.

The investigation revealed that Early Man in this region had the knowledge of selecting suitable raw materials for making his tools like varieties of scrapers, borers, points, burins and blades. The Early Man not only exploited easily available water-worn pebbles and nodules of multi-coloured siliceous minerals like chert, jasper, chalcedony and agate, but also went right near the source viz., outcrops of inter-trappean cherty beds, at Bhokar and Kivala, which yielded rich collection of finished and unfinished tools.

Geomorphological investigations revealed the shifting in the river bed of the Godavari from+20 m to -15 m below in relation to modern bed-level during the last 60,000 to 70,000 years B.P. There was an extensive aggradational phase between 40,000 to 10,000 years B.P. The fluctuations in the behaviour of the river were probably due to mild climatic changes. The study of early historical sites shows that there had been considerable changes in the course of the Godavari and its tributaries and there is also convincing evidence of severe floods.

Palaeontological studies revealed the presence of the following Late Pleistocene animals: *elephants {Elephas maximus),* buffaloes *{Bubalus bubalis),* deer *{Cervus* Sp.), horse *(Equus namadicus)* and cattle *(Bos namadicus)* and the region was covered by a dry deciduous scruby forest. Near Ambajogai on the Manjra, a tributary of the Godavari, elephants predominate at Dhangaon and cattle at Vangadari. Such distribution of animals appears to have been controlled by local ecology. The dominance of the former indicates a marshy and swampy environment while the latter suggests a savannah landscape. The faunal wealth of this region, though slightly later in age, is comparable to that of the Narmada in central India and the Siwaliks of north India.

51. EXPLORATION IN DISTRICT CHANDRAPUR.—In the course of exploration in the sub mersible areas under the Inchampalli Project in Sironcha Taluk, Shri D. Hanumantha Rao of the South-eastern Circle of the Survey, discovered sites yielding Lower Palaeolithic to microlithic tools and medieval temples, sculptures and structures. Lower Palaeolithic tools, recovered from Chandaram, Kottapalli, Nandakura, Ramannapet and Vardiam, include unifacial choppers, bifacial handaxes of various shapes and sizes, inverted V-shaped cleavers, etc. Middle Palaeolithic tools made on fine chert were picked up from the first mentioned site. Microliths were obtained at Eyampalli. All the sites are on the banks of the rivers Pranahita and Godavari.

A damaged brick temple, sculptures of Ganesa, Siva and Hanuman, assignable to the late Medieval period, were located at Rangayapalli while at Kottapalli, a rubble fortress, square in plan, and some loose sculptures of Virabhadra and Hanuman were noticed.

Dr A. M. Shastri of the Nagpur University, Nagpur, assisted by Drs S. P. Jamkhedkar and D. B. Deglurkar, discovered a site at Udapur, about 3 km from Brahmapuri, yielding micaceous red, slipped red, black-and-red wares. Some of the sherds of the first ware bore paintings in black pigment. A number of legged querns were also found.

52. EXPLORATION IN DISTRICT KOLHAPUR.—Professor R. V. Joshi and Dr R. S. Pappu of the Deccan College Post-graduate and Research Institute, Pune, noticed and examined a group of natural caves near Gargoti in Bhudargad Taluk, and also explored the Vedganga valley around Gargoti.

The caves, on one of the prominent offshoots of the main Sahyadri range, are found at a distance of about 7 km south-east of Gargoti and can be reached from the Barve and Pal villages. The rock is of the Deccan Trap lava flows, capped by nearly 8 to 10-m thick laterite, in which the caves have been formed. The cave near Pal is 5 m wide and 3 m high with a spacious frontage, revealing a thin layer of red clay derived from the laterite. Microliths were found in the thickly forested slopes around the caves and also from a small plateau on the top of the caves.

Examination of the quartzite outcrop formations between Gargoti and Vengrul, brought to light sites at Shelol and Vangrul, yielding Lower and Middle Palaeolithic tools, including choppers, scrapers, ovates, etc.

Dr R. S. Pappu explored the upper reaches of the Hiranyankeshi and the Ghataprabha rivers in Gadhinglaj and Ajra Taluks. The geomorphic investigations included study of slopes, valley-forms, channel gravels, colluvium and overbank flood silts and sands. Even though the most prevalent geological formations of the area is Deccan Trap basalt, there are small isolated inliers of the rocks of the Kaladgi system represented by quartzites, sandstones and shales in these river valleys. Lower and Middle Palaeolithic sites were located at Ainapur, Ajra, Harali, Nesari and Ningudage, yielding choppers, scrapers, handaxes and borers. The Pleistocene alluvial deposits are rather poorly preserved and occur in thin patches. The present investigations have established the presence of prehistoric habitation in this hilly tract, lying to the immediate east of the Western Ghat.

53. EXPLORATION IN DISTRICT NAGPUR.—During the course of exploration, Dr Ajay Mitra Shastri of the Department of Ancient History, Culture and Archaeology, Nagpur University, Nagpur, discovered megalithic and early historical sites.

Megalithic stone-circles were noticed at Mandhal, Dongar Mounda, about 3 km southeast of Mandhal and near Kuhi, all in the Umred Taluk.

Early historical remains were located at Adam and Nandpur. Adam, located 5 km to the north-east of Mandhal, a known Satavahana site from where a Roman coin was found earlier, yielded neolithic celt, carnelian beads, brick structures, storage jars in red ware, skin rubbers, and black-on-red ware and legged querns. The site, now deserted, seems to have been enclosed by a mud-rampart.

Nandpur, ancient Nandivarghana, the capital of the Vakatakas (earlier reported by Wellstead in *JASB,* NS, XXII, pp. 160-161) concealed vestiges of brick structures covered by thick vegetation and dry masonry walls on the hillocks protecting the site.

54. EXCAVATION AT MANDHAL, DISTRICT NAGPUR.—The Department of Ancient Indian History, Culture and Archaeology, Nagpur University, Nagpur, under Dr Ajay Mitra Shastri, assisted by Drs A. P. Jamkhedkar, G. G. Deglurkar and O. P. Varma, undertook excavation at Mandal in Umred Taluk, with a view to ascertaining the potentiality of the site, as it had yielded on an earlier occasion three Saiva images of the Gupta-Vakataka period while digging pits for planting saplings by the Forest Department. Red Polished Ware sherds were also found on the surface exploration. Trenches were laid at three places viz., at Bhola Hudki (BHK-I), 1 km from the Mandhal, at Mandhal itself (MDL-I) and at an area lying between BHK-I and MDL-I, called MDL-II.

Excavation at BHK-I revealed a rectangular brick structure (19 x 10 m) oriented east-west with flight of steps on the north and south. The bricks used were of two sizes, viz., 44 x 23 x 8 and 40 x 24 x 8 cm.

The ceramic industry of the period is represented by a red ware, comparable to that found at Paunar in the Vakataka levels. Associated finds include: a dozen sculptures of the Hindu pantheon, all broken and stylistically belonging to the Gupta-Vakataka period; an earthen pot containing three sets of copper plates, one of Pravarasena II and the rest of Prithvisena II of the Vakataka dynasty. The sculptures and the pot containing the copper plates appear to have been deliberately buried under the floor of the structure.

The excavation at MLD-I, the site disturbed by the foundation of a school building, revealed two phases of habitation, the earlier belonging to the Satavahana and the later of a subsequent period. The associated ceramic industry consisted of black-and-red and red wares. Some of the sherds of red ware show paintings in black pigment. The structural remains of this phase consisted of wells, built of wedge-shaped bricks. Other important antiquities recovered are beads of semi-precious stones such as agate, etc., arecanut-shaped beads of terracotta, tiles and iron nails.

The excavation at MDL-II revealed a brick structure (11.5 x 10.0 m), oriented north-south, with a couple of projections on the west. At the bottom of the foundation of the structure, on the northern and southern sides, alignment of stones dressed on the exterior, were noticed. The ceramic industry is represented by red and black slipped wares. Sprinklers in red slipped ware and decorated stone pieces were recovered from the excavation.

MEGHALAYA

55. EXCAVATION AT MISIMAGIRI, DISTRICT GARO HILLS.—In continuation of the last year's work *{1974-75,* p. 36), the Department of Anthropology, Gauhati University, under Professor M. C. Goswami along with Drs T. C. Sharma, H. C. Sharma and Shri S. K. Roy, resumed

exploration in the central part of the Garo Hills in the valleys of Rongram and Selbel, and brought to light a number of Stone Age sites, important among them being the one falling within the north-eastern limits of the village Misimagiri. The top soil of the site has been completely eroded, revealing large quantities of stone artefacts. In an area of about 200 sq. m two hundred and fifty tools in mint condition, comprising handaxes, choppers, varieties of scrapers, blade tools, points, etc. were collected.

A trial excavation was conducted in a trench (5.00 x 3.50 m) with a view to ascertaining the stratigraphic sequence of the tool-bearing deposits. Excavation revealed 76 cm thick deposit, representing a single layer of reddish silt, containing flakes and cores, besides three hundred tools, made on locally-available dolerite, including blades, points on blade, varieties of scrapers, points, burins, etc. The tools were heavily patinated.

ORISSA

56. EXPLORATION IN DISTRICTS BALASORE, CUTTACK, KEONJHAR AND MAYURBHANJ.—The Department of Archaeology and Museums, Government of Orissa, during the course of an exploration discovered a number of sculptures, caves and microlithic sites.

Two temples known as Jhadesvarani and Banesvara, having Jaina, Buddhist and Brahmanical images were noticed at Balasore town itself. At Charampa (Bhardrak) in District Balasore, images of Parsvanatha, Ambika, Karttikeya, Ganesa, Surya and Mahishamardini were noticed.

Exploration in District Cuttack was confind to the Chitropala valley, covering the areas of the Kendrapara and Salepur police stations. Important among the sculptures datable from eighth to thirteenth century A.D., are Buddha in *bhumisparsa-mudra* with Buddhist *dharani,* Tara and Avalokitesvara. Besides, three rock-cut caves, similar to Udayagiri-Khandagiri caves, were noticed in the Indrani hills of Chow Dwar. A large-sized Adi Jaina image was also noticed at Hatadiha in Jaipur area. A trial digging at Brahmavana bought to light an ancient brick structure datable to the ninth-tenth century A.D. At Anandpur, Baidakhia, Baranchua, Jumbhir, Podasinghidi and Thunigan, all in District Keonjhar, several Jaina and Brahmanical images datable to the medieval times were noticed.

Two microlith-bearing sites were noticed near Athagarh on the river Sapua. Rock paintings in red ochre on the face of a hillock known as Pakhanpather near Jamda, 15 km from Rairangpur, in District Mayurbhanj, were also noticed.

57. EXCAVATION AT RANIPUR JHARIAL, DISTRICT BOLANGIR.—The Department of Archaeo logy and Museums, Government of Orissa, conducted excavation at Ranipur Jharial, where an image of Buddha was found earlier, and exposed structural remains of a collapsed temple of brick and stone. The image and the temple can be dated to *circa* ninth-tenth century A.D.

58. EXCAVATION AT KURUM, DISTRICT PURI.—Shri P. K. Ray of the Department of Archaeology and Museums, Government of Orissa, conducted excavation at Kurum, 8 km south-east of Konarak, from where images of Buddha, Avalokitesvara, Heruka and terracotta figurines and red ware were recovered earlier. The present excavation revealed a brick wall measuring 30 m on the west and 20 m on the north along with other adjuncts. An important structure revealed through excavation consisted of a square chamber with three ovens and a drainage system, etc., encountered at a depth of 3 m.

PUNJAB

59. EXPLORATION IN DISTRICTS AMBALA, BHATINDA, HOSHIARPUR, JULLUNDUR, LUDHIANA,

KARNAL AND ROPAR.—The Department of Archaeology and Museums, Government of Punjab, during the course of an exploration in the above-mentioned Districts discovered the following sites.

(LH=Late Harappan; PGW=Painted Grey Ware; GW=Grey Ware; BRW=Black and Red Ware; BSW=Black Slipped Ware; NBP=Northern Black Polished Ware; EH=Early Historical; EM=Early Medieval KC=Kushan coins; SC=Scythian coins; IPC—Indo-Parthian coins; AC=Audumbara coins; and S=Sculptures.)

District	*Villagejsite*	*Cultural assemblage*
Ambala	Sarai Sambu	GW
Bhatinda	Satauj	PGW, BRW, EH
Hoshiarpur	Ajaram	GW, EH, KC, SC, IPC
Jullundur	Zahoora	EH
Karnal	Bhasmara	LH
-do-	Durad	LH, PGW
-do-	Ghurum	PGW, GW, BSW, NBP, EH, AC, S, EM
Ludhiana	Doraha	LH, GW, BSW, EM
-do-	Hathur	GW, BSW, EH, KC
-do-	Kohara	LH, PGW, GW, BSW, EH
Ropar	Kubaheri	LH, PGW, BSW, EH

Besides, a tank built of baked bricks of sizes 72 x 51 x 15 and 36 x 26 x 2 cm at Satauj, mud-brick platform, probably belonging to the Late Harappan period at Durad, and a terracotta sealing bearing legend *Ghavankurma* at Ghurum, were also noticed.

60. EXPLORATION IN DISTRICT ROPAR.—In the course of exploration in Kharar Taluk, Shri Lalman of the Department of Ancient Indian History and Archaeology, University of Punjab, located the following sites.

(H=Harappan; LH=Late Harappan; PGW=Painted Grey Ware; EH=Early Historical; GW=Grey Ware; EM=Early Medieval; M=Medieval TF=Terracotta figurines; SB=Shell bangles; S=Sculptures; and ML=MicroIiths)

District	*Villagejsite*	*Cultural assemblage*
Ropar	Chandpur	H, PGW, TF, SB, S, EM, M
-do--	Chhoti Parach A	GW, ML
do--	Chhoti Parach B	PGW
do--	Hathnaur A	H
do--	Hathnaur B	H
do--	Hathnaur C	EM
do-	Jayantipur	S of EM, M

District	*Villagejsite*	*Cultural assemblage*
Ropar	Karor (upper)	EM
-do--	Karor (lower)	GW, EH
-do--	Khera A	EH, S of M
-do--	Khera B	GW, EH
-do--	Majri	GW
-do-	Nada	LH, EH

TAMIL NADU

61. EXCAVATION AT KANCHIPURAM, DISTRICT CHINGLEPUT.—In continuation of the previous year's work *(1974-75,* pp. 37-38), the Department of Ancient History and Archaeology, University of Madras, resumed excavation at Kanchipuram.

Excavation at KCM-15 A, extension of KCM-15, in Big Kanchipuram confirmed the sequence of cultures observed earlier. However, a collapsed brick structure of unknown utility and a few courses of bricks, laid crosswise, probably forming a part of a drain, were brought to light. Terracotta human heads, earrings, amulets, pendants, gamesmen, beads, etc. constitute antiquities from Periods I and II.

Excavation in two trenches KCM-16 and KCM-17 in Little Kanchipuram behind the Varadarajaperumal temple, revealed that the deposits belonged to post-Pallava times. The ceramic industry is represented by red ware of the Medieval period. The structural remains of the period consists of a ring-well in the uppermost level with its rings reaching down to the natural soil. A tiny gold coin, *port* variety of the Vijayanagara period, was found in the top levels of KCM-17.

62. EXPLORATION IN DISTRICT NORTH ARCOT.—In the course of exploration, the Depart ment of Ancient History and Archaeology, University of Madras, located, in the hilly region, sites yielding neolithic celts and habitation deposit of the megahthic and later times, at Kallarimalai near Rajakkal and Appukallu. At the latter site, two hero-stones, assignable to ninth century A.D, and megalithic stone-circles near Sholinghur hill were also noticed.

63. EXCAVATION AT SITTANNAVASAL, DISTRICT PUDUKKOTTAI.—Shri K. S. Ramachandran of the Exploration Wing of the Survey, assisted by Shri M. S. Mani of the same office and Sarvashri A. T. P. Ponnuswami and M. Thyagarajan of the Temple Survey Project, Southern Region, undertook excavation at this site with a view to finding out the nature, contents, characteristics and constructural details of the megaliths of the Pudukkottai region and to collecting samples for TL dating. Three megaliths, besides a previously-excavated transepted-cist with antechamber, were excavated during this seasons digging.

Megaliths are located at the foothills in three groups: (i) on either side of the road from Pudukkottai to Annavasal; (ii) on either side of the road branching off to the rock-cut caves near the Aiyanar temple, and (iii) on the foreshore of the Sengulam tank near the Sittannavasal village. The first group consists of two types: (a) port-holed slab-cists, demarcated by a stone-circle, mostly of dressed laterite and occasionally of granite boulders and the whole monument covered by cairn heaps; (b) rectangular enclosure of slabs and boulders, one of which is a tall slab resembling a menhir which for sake of convenience is denoted as headstone, with a balus-traded passage covered with a huge slab leading into the enclosure The capstone m all the megaliths of the first type is missing. The second group consists of stone-circles of granite

boulders, with a capstone and cists surrounded by a circle of dressed laterite, dressing being confined to the outside only. The third group consists entirely of transepted cists with antechamber bound by a circle of dressed laterite. Some of the megaliths had granite stone-circles also. Segregation of types was noticed in all the groups. Four megaliths, labelled Megaliths I-IV were excavated. The result of the excavation is as follows.

Megalith I, rectangular on plan, measuring 7.7 x 6.4 m, constructed with boulders of varying sizes and occasional slabs, was found filled with local clay and rubble. A tall menhir-like slab was found planted as one of the stones of the circle on the south south-west. The chamber is provided with a passage on the north-west, formed by two vertical slabs, one on each side, covered by a huge slab. The excavation brought to light from bottom upwards colloidal whitish grey clay over which were found stone rubbles. In the centre was found a rectangular pit oriented roughly east-west (2.9 x 1.6 x 1.4 m). The pit, the outline of which was indicated by concentration of rubbles, had been dug up to the natural disintegrated granite. Filling inside the pit was mainly rubble and local clay with decreasing density of rubbles towards the bottom. The nature of the filling was responsible for the damage to the interment inside. The pit contained only pottery placed at different levels. The scatter of sherds in the upper levels shows that clay and stones were thrown in unceremoniously. Pots in the lower levels were comparatively intact.

The shapes of pots included dishes, bowls and vases, all of the usual megalithic fabric and wares, viz., Black-and-red Ware, red and black wares. The black ware was of the polished variety, found in the southern districts of Tamil Nadu. The pit did not contain either skeletal remains or iron objects.

The constructional method adopted was as follows.—

The required space was first cleared and the bounding boulders were placed in position. As the stones were of irregular shapes, slight depression had to be made wherever necessary. In the case of huge menhir-like headstone, a deeper pit was needed to ensure stability. In the case of the passage, two slits were made into which the verticals were inserted and packed with rubble. These verticals were flushed with the outer alignment of the rectangle. The pit was the last to be excavated. The pit and the passage were in the same alignment. Having dug the pit, the furnishings, in the form of pots and pans were placed inside, carrying them, in all probability through the passage; the pit was thereafter filled up with clay and rubbles. Before filling up the area, the passage was closed with a huge stone-slab which was found projecting much beyond the length of the passage outside.

Megalith II, located in the second group, is a stone-circle having granite boulders for its bounding circle. This had a capstone (1.45 x 1.80 x 0.25 m) in the Centre covering the pit underneath. The rubble filling inside had been washed away because of the gradient. The circle measured 2.65 m across east-west axis and 2.20 m across north-south. Removal of the capstone revealed an oblong pit, 95 cm in diameter and 65 cm in depth. The half-intact portion of the pit was dug up to the natural soil. Inside the pit was found an urn with a Black-and-red Ware lid, both damaged due to the overlying weight of the capstone. The interred urn decorated with a cord design of applique work on the exterior was found slightly tilted towards the east. A ring-stand of tannish red ware was found in between the urn and the pit. Filling inside the urn was of colloidal clay, with streaks of sand which obviously must have percolated through holes. Nearly fifteen pots consisting of conical lids with bud finials, shallow dishes, ring-stands, etc., were found in a cluster inside the urn. They were in a highly damaged condition.

Megalith III is situated on the eastern side of the road opposite Megalith II and falls under the category of cists. The cist is surrounded by a circle (4.30 m east-west and 4.20 m north-south) of externally dressed laterite blocks with an inward taper (pl. XLVII A). The space between the circle-boulders and the cist was filled up with earth. The excavation revealed that this filling, only superficial, was going up to a depth of about 5 to 10 cm,

below which was found cairn rubbles of granite with a few lateritic pieces thrown underneath along with sandy earth. The cist-chamber is made up of granitic slabs with a narrow passage on the east on the southern end, this also being lined with slabs of the same stone. The bottom of the passage is in level with the port-hole of the eastern orthostat. The vertical slabs of the passage almost touch the lateritic boulders. The passage is filled with heavy granite boulders which hold the covering slab of the port-hole in place. Inside the cist, from top downwards, the filling consisted of sandy earth, rubbles of granite and laterite, concentration being on the south-western corner, indicating that the stones were thrown through the port-hole. This filling was found right down to the floor-level of the cist. Two urns (pl. XLVII B) having large bowls of Black-and-red Ware, serving as lids but badly damaged due to the weight were found kept on their bellies with mouths facing the port-hole. Of the two, one was comparatively less damaged. The urns did not contain anything except a fragment of an iron blade. The pots were found in all conceivable places and positions, though the concentration was towards the east. No pots were found beneath the urn on the northern side. However, an iron sword was seen underneath the urn alongside the western orthostat. The bed-rock itself was roughly levelled to serve as the floor. Pots and iron objects were found below the other urn.

The pottery in the grave consists of Black-and-red Ware, all-black and red wares, represented in shapes such as conical and funnel-shaped lids with or without finials, round-bottomed pots, deep bowls, varieties of ring-stands, etc. Iron objects comprised sword, dagger, sickle, an indeterminate object with a handle, etc. No skeletal remains were found in this megalith.

The constructional method adopted, as in other megaliths, was as follows: the required space was initially cleared followed by digging of the passage and the central pit. Thereafter, the orthostats were placed in position followed by lining the passage with slabs to form the cist. Once the cist-chamber was made ready, the interments were introduced into the chamber, most probably through the port-hole. Pots and pans and iron weapons were placed in their places. After interring the urn, which must have been handed down to person standing inside, filling material must have been thrown in the cist through the port-hole. At a certain stage, the port-hole was closed with a slab and blocked by boulders to keep it in position. At the penultimate stage the bounding circle-stones were positioned and the inner space between the bounding circle and cist filled with cairn-rubble and earth.

Megalith IV, a rifled transepted-cist with an antechamber was taken up with the sole aim of ascertaining the constructional peculiarities. This megalith is located in the Sengulam area and is circumscribed by a circle of externally-dressed lateritic boulders. The circle measures 6.5 m in diameter. The cist (1.65 x 1.60 x 245 m) is in the centre with the orthostats projecting considerably above the cairn filling. The chamber was divided into two halves (pl. XLVIII A), northern and southern, by a septal slab with two port-holes, one at the top and the other at the bottom. The lower port-hole was semi-circular in shape and the upper, now damaged, must have been circular. In the southern half over the two verticals, was placed a horizontal slab, now missing, in the level of the port-hole. The verticals were held in position by a buttress of stone rubbles. Removal of the debris in the southern half revealed that there was no floor-slab but the bed-rock, consisting of the disintegrated granite, was levelled up. A depression was noticed in the centre of the cist-chamber. The septal slab divided the depression into almost equal halves. A few pots, dishes, ring-stand, etc. were found in this depression. The northern half revealed a floor made of almost uniform flat pieces of stones. Several pots, dishes, ring-stands, lids, iron objects, etc., (pl. XLVIII B) were found in a thick deposit of earth below the flooring of stones and overlying a slab placed on the roughly-levelled bed-rock. The furnishing were in more than one layer. Absence of any furnishings over the former false flooring is probably a new feature in this area, as the excavations of such types in other area have yielded furnishings over the false flooring.

The ante-chamber-(1.0 x 0.80 x 1-40 m) with its northern end in alignment with the northern orthostat of the main cist, is on the eastern side of the cist. The ante-chamber was lined with stone slabs on three sides and opens into the port-hole on the eastern side. The port-hole was closed by a thin slab and kept in position by a heavy granite boulder.

Construction of this type is almost similar to that of Megalith III with the additional placement of the septal slab and the provision of bench or bed in the southern half and the false floor.

The furnishing inside the cist consisted of pottery of the usual megalithic fabric viz., Black-and-red Ware, all black and red wares and iron objects. Pot-forms include pyriform jars with flat or pointed bases, globular jars and lids in red ware, deep bowls with rounded base, dishes and conical vases in Black-and-red Ware, and varieties of ring-stands and funnel-shaped lids with bud-like finials in black polished ware. One of the deep bowls in Black-and-red Ware had traces of linear designs painted in black pigment. Iron objects were represented by barbed arrowheads, sickles, daggers, swords and an indeterminate object with a ring hoop.

The result of the excavation of these four megaliths in Pudukkottai region leads to the following observations.—

1. Segregation of types of megaliths even in the same site was observed. This aspect appears to be universal as observed in the District Chingleput in Tamil Nadu and also in Kerala.

2. Cairn-circles, enclosing urn in a pit are usually covered over with a capstone in Pudukkottai region. This feature was observed not only at Sittannavasal but also at an extensive urn-burial site, appropriately known as Kalasakkadu (a forest of urns) at Tiru-kkattalai, a suburb of Pudukkottai town. This type is also known from Porkalam in District Trichur, Kerala.

3. The burial furnishings are usually confined to the inside of the urn, very rarely one or two pots are kept outside the urn, unlike the urn-burials of other areas in Tamil Nadu and Kerala.

4. Interring an urn inside a cist is not known in other regions. However, burying of a sarcophagus inside a pit is known from Tamil Nadu and Karnataka. The positioning of urn/urns inside a cist on its/their belly/bellies and facing it/them towards the port-hole is a unique feature. Curiously, the urns are empty. The cists with passage are architecturally comparable with the passage graves of Karnataka. Even in Chingleput the dolmenoid cists do have an incipient passage.

5. According to present day distribution transepted cist appears to be exclusive to Pudu kkottai. Future exploration in other parts of the country may disprove this observation.

6. The rectangular or oblong enclosure with a menhir-like head-stone, a closed passage and a rectangular pit is again restricted to Pudukkottai region.

7. Painted pottery, generally absent or rare in the megaliths of Tamil Nadu is found here. It is different from the Russet-coated Painted pottery, which is common in the burials in other Districts of Tamil Nadu.

8. Complete absence of skeletal remains in all the four excavated megaliths is intriguing. This corroborates the result of the earlier excavations, with the exception of the urn-burials at Pulvayal yielding bones.

9. The megaliths of this region are later than those in the adjoining regions and may be dated to the first century A.D., if not earlier.

UTTAR PRADESH

64. EXCAVATION AT BATESVARA, DISTRICT AGRA.—Shri J. S. Nigam of the Nothern Circle of the Survey conducted a small-scale excavation at Batesvara in the year 1974, with a view to ascertaining the stratigraphical position of the black-and-red ware and its relationship with

the Painted Grey Ware and later cultures in the eastern part of *Braja* region. Two trenches one. each on the Fort and the Mata mound were laid out. The excavation revealed four periods

Period I is represented by the Painted Grey Ware, black-and-red, black-slipped, pale red-slipped and red wares. Black-and-red and black-slipped wares are represented by vases, and the red ware by vases and squat type of dish-on-stand. Some of the vases and jars of red ware show incised decoration, including triangular notches, wavy lines, diamonds and combinations of circles with oblique notches, besides impressions resembling mat and tortoise-shell. Other finds include terracotta discs, marble, bangle, vase-shaped beads, flesh-rubber, hopscotches on pottery, stone ball, beads of semi-precious stones, bone points, and fragments of copper and iron objects. One of the samples from the deposits of this Period has been dated to 5130+240 (5280 ± 240) bv C-14 method.

Period II is marked by the introduction of the Northern Black Polished Ware and thick grey ware. However,, the pale red-slipped ware occurs in lesser frequency and gradually disappears. Bowls and dishes are common to all these wares, but lids are represented in black-slipped and red wares, while vases, *handis* including rimless variety, basins and pans are common shapes in red ware. Other noteworthy antiquities of the Period include: terracotta objects such as human figurines, including mother goddess and animal figurines representing horse, elephant humped bull; bangles, marbles, beads, pendants, net-sinkers, rattles, discs, ear-studs, wheels and a sealing, flesh-rubbers in terracotta; styli, points, collyrium stick, bracelet and a richly carved jewel box in bone; beads of carnelian and agate; sling balls and pestles in stone; copper rings, beads, a few coins; and objects of iron. Structural remains of the period are represented bv: two mud-brick (size: 53 x 26 x 8 cm) walls of five courses laid in headers; two baked brick (size: 50 x 25 x 8 cm) walls of twelve courses laid in headers; post-holes were observed at the ends of the floor. Besides, a ring-well and an oven were also encountered. The Period is dated to 2520±160 and floor-levels (2590 ±160), on the basis of Radiocarbon test.

Period III is represented by dull red, and red-slipped wares, besides a few sherds of the Red Polished Ware. The shapes available include bowls, ink-pot type of lids, sprinklers, basins and vases of various sizes. Noteworthy finds of the Period include: terracotta, human and animal figurines, bangles, beads, discs, pendents, votive tank and hopscotches; shell bangles; bone points; stone caskets and beads; a scrolled zinc ear-stud, antimony stick of copper; and fragmentary iron objects. Besides, a few copper coins were also recovered. The structural activity of the Period is represented by four successive mud-rammed floors, laid on brick-jelly foundation; a well of baked bricks (sizes: 50 x 25 x 7 and 41 x 24 x 6 cm) built over a foundation of rammed earth; and two ring-wells. This period is dated to first to sixth century A.D.

Period IV is represented by red and thick grey-black wares. Available shapes include bowls, basins, *handis* and vases, some of them having spouts. Other objects belonging to this Period are: terracotta female and animal figurines, marbles, bangles, net-sinkers, potter's stamps, beads, flesh-rubbers; pottery hopscotches; beads and caskets in stone; points, styli and collyrium stick of bone; shell bangles; beads of shell, faience and glass; copper antimony rod; and fragmentary objects of iron.

Six structural remains were exposed, of which two are floors and others are walls built of reused bricks and are incomplete. The period is assignable to Rajput-Sultanate times.

65 EXPLORATION IN DISTRICTS ALLAHABAD, BANDA, MIRZAPUR AND VARANASI.—Dr P. K. Varma and Sarvashri B. B. Mishra, V. D. Mishra and D. Mandal of the Institute of Archaeology, University of Allahabad, under the direction of Professor G. R. Sharma, explored the valleys of Belan and its tributaries, in the District Allahabad, Paisuni and its tributaries, in Districts Banda and Varanasi, and located sites ^assignable to various cultures from the Stone Age to the Early Historical times. The sites have been described in chrono-cultural sequence as under.

Lalapur located in the District Banda, on the Allahabad-Banda road, 19 km to the east of Karvi, yielded some Lower Palaeolithic tools from the boulder conglomerate in the river section of Ohan, a tributary of the Paisuni. Deokali on the same river is another site yielding Lower Palaeolithic tools. The 15-m high cliff section here showed two sets of deposits, each consisting of a gravel-bed and an overlying silt deposit. The stratigraphy is as follows: Gravel I (2.55 m); silt (1.0 to 1.5 m); Gravel II (1.5 to 2.0 m) and kankary reddish brown silt (9.0 m). Gravel I yielded Lower Palaeolithic tools including cores, flakes, etc., whereas the topmost deposit yielded microliths, consisting of blades, lunates, scrapers, etc., of semi-precious stones like chert, chalcedony, etc.

Middle Palaeolithic tools, consisting of cores, flakes, scrapers and points, made exclusively on quartzite were found at Tihar on the Sohagi hill, 11 km from Chakghat. The industry is similar to the one encountered in the Belan valley.

Raipura also yielded similar tools. Upper Palaeolithic tools were found in the valleys of Naina near Bahuti Falls and Piprahighat on the Adwa.

Microliths were obtained from Ailaha, Bahilpurva, Chamraunha, Chheriha Buzurg, Chheriha Khurd, Dabhaura, Donda, Hela Bagdari, Markundi, Panhai, Rajaunha, Rehuntia, Samardaha and Tikaria, all around Manikpur; Barampura, Bharatpur, Bharthaul, Bihara, Gadhiva, Khohi, Kolgadahia, Nayagaon and Sangrampur, all in or around Chitrakuta; and Gurha, Kalinjar, Kartal, Khatri-ka-Pahar, Naraini, Navagawan and Shahpatna, all in and around Naraini in District Banda. Bankat in Gyanapur Sub-Division, District Varanasi, yielded microliths such as flakes, lunates, blades and points made on chert, chalcedony and quartz. The site, 54.4 km to the north-west of Varanasi, is the second site north of the Ganga to yield such tools.

A number of painted rock-shelters were also discovered on the Sohagi hill. The paintings in red and black pigments, depicting stags, deer, bovids, dancing and hunting scenes differ from the Vindhyan shelters where the pigments used are red and white. A few microliths were also found in these shelters.

Neoliths such as celts, adzes, hammer and pounders on basalt were picked up from Naraini and Ranipur Khaki in District Banda. Besides, sites with neolithic vestiges were located at Jamua, Jamshot, Pawari on Koilaharia and Khajuri on the Belan.

Bahraicha and Kapasikalan, Koilariha and Kukurahata on the Lapari and Belan in District Allahabad yielded black-slipped and black-and-red wares. Bahraicha and Kapasikalan are extensive sites, yielding pottery comparable to the chalcolithic pottery found at Koldihwa.

Megalithic burials represented by dolmenoid-cists and cairn-circles, and habitation sites, were found at Lalapur, Maraiyan and Pahra in District Banda and Mairhar in District Satna in Madhya Pradesh. Pottery of black-and-red and black-slipped and thick wares similar to the Kotia megalithic pottery was found here.

An early historical site, yielding Northern Black Polished Ware and associated ceramics was located at a site falling between Sirsa and Paranipur on the right bank of the Ganga, while Northern Black Polished Ware and Kushan pottery were recovered from Pachhini Sarira in the Majanpur in District Allahabad. The sites at Ghatampur and Mahuapur-Chauthar in District Banda yielded Northern Black Polished Ware and allied pottery. Habitation in the first site started in the mid-phase of the Northern Black Polished Ware period, while in the latter it started in the late phase and continued up to the early medieval times. From the latter site a few glazed pottery were also collected.

Dr P. C. Pant and Dr Vidula Jayaswal of the Department of Ancient History, Culture and Archaeology, Banaras Hindu University in the course of exploration of the valleys of Belan and Seoti in Districts Allahabad and Mirzapur, located several Upper Palaeolithic sites and rock-shelters. A careful study of the cliff-section of the rivers revealed that the basal gravel or the boulder deposit was hardly *in situ,* excepting in a couple of places. Gravel II was found in

its original position while Gravel III was comparatively loose and consisted more of sand. The silt overlying Gravel III was not implementiferous, but the lower portion was rich in calcium carbonate and iron oxide. Gravel III yielded a number of Upper Palaeolithic tools. Muhugarh near Drummondganj is an important site in District Mirzapur. The tool repertoire consisted of blades, bladelets and a few flakes. Some of the backed blades are convex, recalling the Federmesser of the Late Magdalenian of northern Europe. Burins are less in number, common type being the offset burin on a retouched side. Borers on blade or bladelet is another type. A noteworthy find is a carved bone found on the surface from a rock-shelter. Several rock-shelters yielding microliths were also noticed in the region.

66. EXCAVATION AT KOLDIHWA (DEOGHAT), DISTRICT ALLAHABAD.—In continuation of the previous season's work *(1973-74,* pp. 26-27) the Institute of Archaeology, University of Allahabad, under Professor G. R. Sharma, assisted by Sarvashri D. Mandal and J. N. Pal resumed excavation at Koldihwa. Five trenches, two in Mound I, two in Mound II, and one in Mound III, were taken up for excavation. This season's excavation exposed a 1.7-m thick habitational deposit confirming the already established sequence. The excavation also revealed a continuity in the occupation of the site from the Neolithic to the Iron Age.

The ceramic industry of the neolithic phase is represented by net-or cord-impressed (pl. XLIX A), plain red and crude black-and-red wares. The exact fabric of the black-and-red ware, however, needs to be ascertained since the sherds are extremely fragmentary and ill-fired. Among these, the net-or cord-impressed ware represents 69.25 per cent and the red ware only 28.15 per cent of the total assemblage. The shapes represented are mainly deep bowls and storage jars. The dishes are conspicuous by their absence. Sherds bearing soot-marks are restricted only to the red ware indicating that this ware may have been used for cooking purposes. Noteworthy among the latter is a spout with burnished surface. It is likely that the tortoise shell may also have been used for making impressions on the pottery.

Associated finds of this phase are microliths, mostly made on cherty material, pieces of querns and muller, burnt clay clods with wattle and daub impressions, remains of rice and rice-husk.

Examination of the core of some of the sherds by the Birbal Sahni Institute of Palaeobotany indicates that these sherds contained rice-husk of the domesticated variety. On the basis of C-14 dates obtained from early chalcolithic levels (7390 ±240 B.P. and 6480±185 B.P.) the antiquity of rice in India can be assigned to the fifth-sixth millennium B.C.

The transition from the neolithic to the chalcolithic is marked by the occurrence of wheel-thrown pottery, the use of well-levigated clay and the increase in the range of functional shapes in the ceramics'. Added to this is the use of sand as a degraissant. The ceramics comprised red, both plain and slipped, black-slipped and black-and-red wares. The black-and-red ware had a gritty surface. Two sherds of the red ware showed groups of incised lines.

Other finds obtained from the deposits of this Phase consisted of microliths, mostly short blades, pieces of burnt clay with reed impressions and fragmentary animal bones.

The structural remains consisted of remains of two mud walls running almost parallel to each other with intervening distance of 1.4 m, probably representing flanking walls of the entrance of a house-complex.

Iron Age vestiges in Mounds I and II consisted of debris of kitchen middens, full of animal bones, ash and potsherds. The excavation revealed that circular pits of varying diameters (1.26 to 4.00 m) were dug for the disposal of waste materials of everyday use. In addition, a partly burnt floor with an open circular hearth on a single mounted *chullah* and three post-holes were also met with. The ceramic industry of the Phase is represented by plain and slipped red, black slipped and black-and-red wares. The net-or cord-impressed pottery was completely absent.

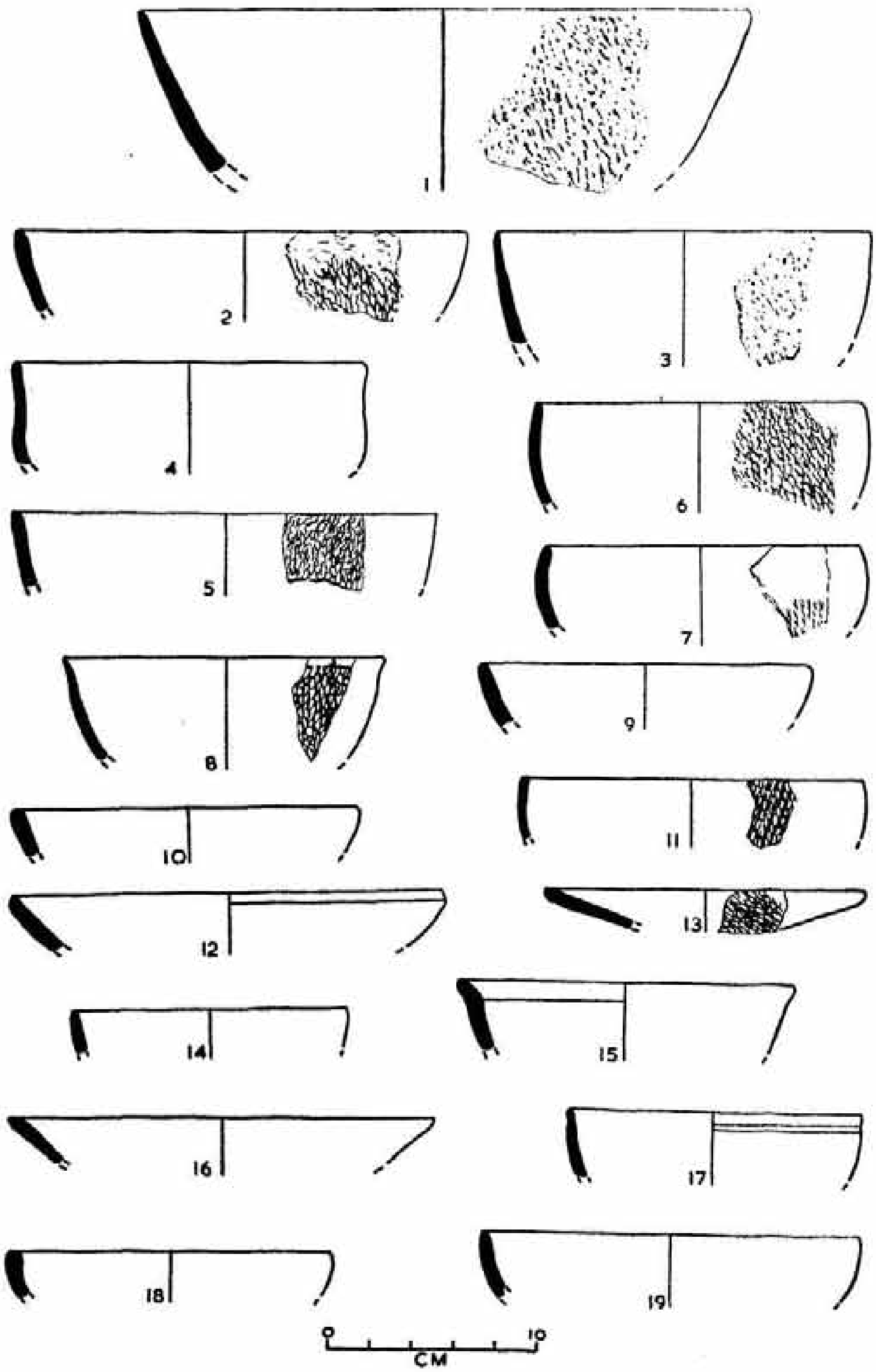


FIG. 3

Other associated finds comprised bone arrowheads (pl. XLIX B), mostly of double pointed, socketed and barbed types and bone-caps to secure bone points, fragments of querns, both saddle and footed, mutters, beads of terracotta and semi-precious stones and microliths. Charred wheat, rice, *moong* were the domesticated varieties of cereals.

67. EXCAVATION. _AT _MAHAGARA (KQTIA) DISTRICT ALLAHABAD.—The Institute of Archaeology, University of Allahabad, conducted a trial excavation at Mahagara under Professor G. R. Sharma, with a view to ascertaining the cultural potentiality of the site. The site is situated on the confluence of the old and new Belan just opposite Koldihwa on the right bank of the river Belan. Surface exploration had yielded corded ware, neolithic celts and microlithic tools. .The chalcolithic wares found in Koldihwa were totally absent at this site. Observation of section of the two nullahs revealed that the occupation deposit at this site was about 3-m thick and the site appeared to be a single culture site. The neolithic occupation was confined to an oval-shaped basin, surrounded by ridges on the north-east and south, the ridge being of the Pleistocene period.

The excavation was conducted to a depth of about 2.45 m which revealed seventeen layers, all sloping towards the north. The bottommost two layers did not yield any remains of human habitation and are correlatable to the silt overlying Gravel II of the Belan valley. The ceramic industry of the site is represented by corded (pl. L A), rusticated, burnished red and burnished black wares. Of these the corded ware represents the larger percentage. The pottery on the whole is handmade and ill-fired; the paste contained rice-husk as degraissant. The shapes (figs. 3 and 4) represented are shallow and deep bowls, jars, small vases and spouted vessels, similar to those obtained from the neolithic levels of Koldihwa. Other finds included microliths represented by blades, lunates and triangles, bone arrowheads, stone sharpeners, micro-beads of stones, perforated shell objects, clay dabber etc. Besides; bones of cattle, fish, bird and tortoise shells were also obtained. Structural remains are restricted to the occurrence of burnt daubs with wattle impressions (pl. L B).

68. EXCAVATION AT PANCHOH,-DISTRICT ALLAHABAD.—The Institute of Archaeology, University of _ Allahabad^ _under Professor G. R. Sharma, conducted a trial excavation at Panchoh. as a sequel to the exploration in the region. The cultural deposit of 60 cm consisted of three layers from top downwards: whitish layer, 20-cm thick; blackish layer, 25-cm thick containing small stone pieces and iron nodules; and yellowish earth with iron nodules and *kankar,* 15-cm thick. The ceramic industry is represented by corded and plain red wares, hand made and ill-fired. The shapes include shallow, convex-sided or straight-sided and pedestalled varieties of bowls and vases. Some sherds show red ochrous slip. The ware was occasionally decorated with incised designs comprising dots, dashes, horizontal vertical, oblique and wavy lines and lattice patterns. The other associated finds include small celts on basalt, microliths on chert chalcedony, agate, carnelian and quartz, consisting of cores, flakes, parallel-sided blades, blunted backed blades, scrapers, points, lunates, trapezes, triangles, etc. A few crested-ridged' flakes were also noticed, besides stone mullers and beads.

69. EXCAVATION AT GANWARIA AND SALARGARH, DISTRICT BASTI.—In continuation of the last year's work *(1974-75,* pp. 39-41), the Excavations Branch of the Survey, Nagpur, under Shri K. M. Srivastava, assisted by Dr. H. N. Singh and Shri Lalchand Singh, resumed excavation with a view to exposing further the structural remains at the sites.

The excavation inside the rooms of the larger structural complex revealed that the earliest inhabitants lived in houses built of mud-walls with roofs supported by wooden posts. Platform-like structures were also encountered at some places. Five phases of structural activities in baked bricks (pl. LI A), already recognized in the earlier season, were confirmed this season also. The

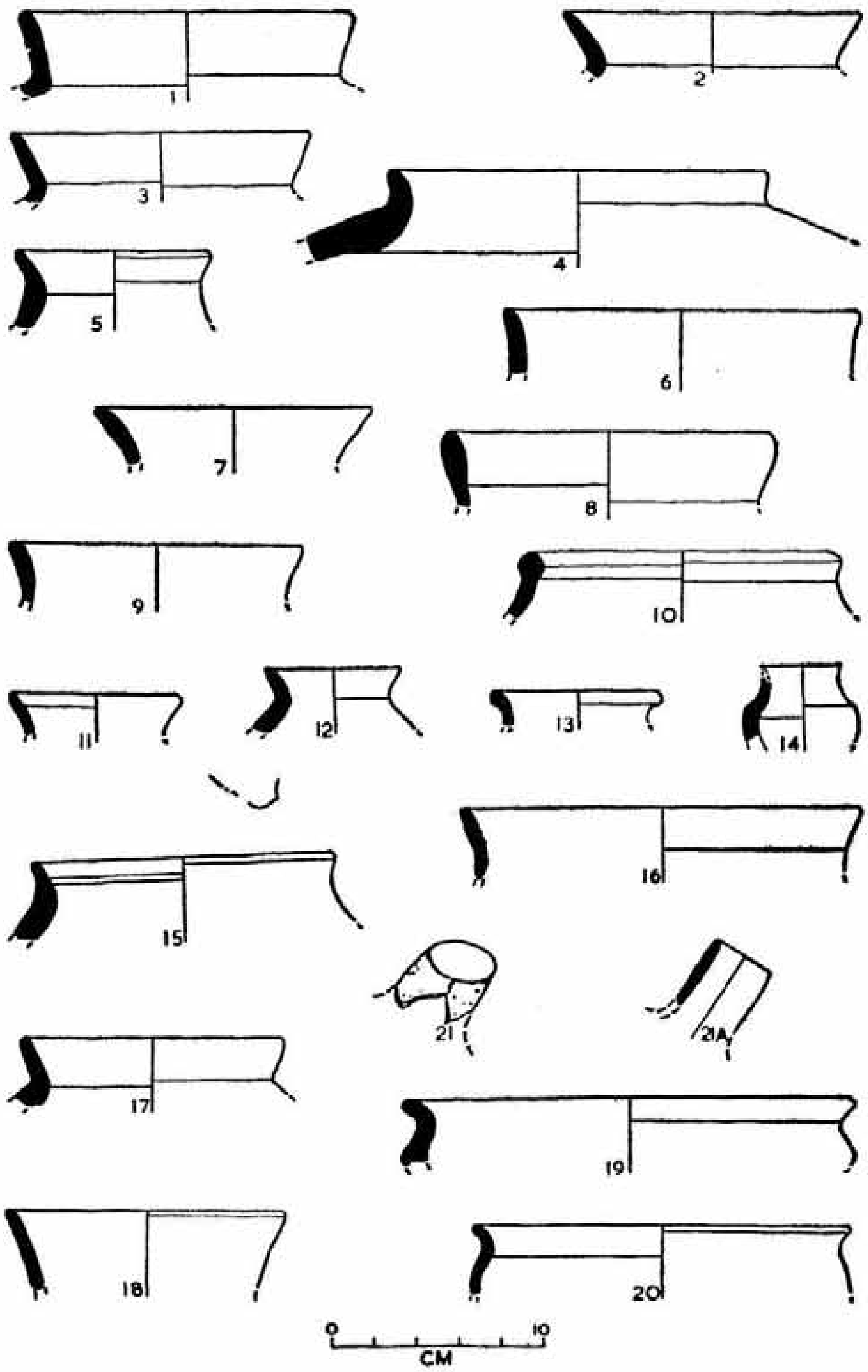


FIG. 4

deposits of the earlier levels were found to be disturbed by series of pits. A new feature observed this season however, is the presence of soakage jars, assignable to the first phase of baked brick structures. Excavation in the central courtyard exposed the earliest floor-level, made up of brick jelly. A covered dram of baked bricks, with its outlet near the south-western corner of the structural complex, was noticed in the courtyard immediately below the floor. It was observed that the first three phases of the baked brick structures varied from one another in alignment. Wooden door-jambs seem to have been used for entrances.

The excavation in the smaller structural complex revealed that one of the rooms just opposite the entrance had been converted into a place of worship, as evidenced by the use of moulded bricks. A beautiful terracotta image of Buddha, seated on a double lotus throne in a contemplative mood, and holding his left hand with the right, was recovered from this shrine. A brick-paved courtyard in the centre is a new feature in this complex (pl. LI B).

A set of rooms belonging to a house-complex were exposed close to the massive outer wall of the larger structural complex, near the south-eastern end of the entrance. This brick structure showed two main structural phases belonging to phases III and IV of the larger complex. A disc of fine-grained bluish sandstone, with 14.5 cm diameter, decorated with figures of elephant, lion and bull, intervened by floral designs and *chakras,* like those found on the abacus of Asokan pillars, found in the excavation here, is datable to phase III. A block of structures, consisting of rooms, verandahs and two courtyards in the centre, was encountered further south-east of the above structure. The entrance of this block was observed on the east. Originally, the structure was square on plan, but later converted into a rectangle by extending towards south. Two main entrances, one each of the earlier and later stages, were provided with flights of steps. A small side-door was also provided to the extended southern arm. Besides, inside the complex and all around the courtyards, rows of rooms and verandahs were noticed. The floors of the rooms, verandahs and courtyards were paved with bricks or brick-bats. Further, it was observed that a long drain, originating from the courtyard of the earlier house, ran through the courtyard of the house of the later stage. This structure-complex appears to have been a school, which would corroborate the statement of the Chinese traveller Hiuen Tsang.

To the north of the larger complex, remains of a house representing another group of secular complex were encountered, besides several walls of various phases (pl. LII A). The final stage of structural activity is represented by houses of small brick-bats. Other worth-mentioning remains include a huge earthen jar and a cistern-like structure rectangular on plan, offsets of the sides narrowing to a paved floor. It may perhaps have been used for ritualistic purposes.

Close to the northern side of the smaller structural complex, several rooms of different houses were unearthed, which seem to have come up in quick succession. The rooms show a south-east, north-west axis and are square on plan. In this area also were noticed a series of pits disturbing the earlier levels. A large number of terracotta figurines, assignable to the Sunga-Kushan times were collected from this area.

Four shrines were also exposed this season. Of these, three are elaborate and the fourth one is comparatively small. All the three big shrines are situated near the eastern and southern end of the smaller structural complex. The shrine towards the east is squarish on plan with the entrance on the west. The sanctum is enclosed by two *prakara-walls* with two *pmdakshina-pathas,* inner and outer. The outer *prakara* belongs to the last stage of its life. The shrine is approached from the west by a flight of steps paved with bricks. The second shrine (pl. LII B) .located towards the south-east of the smaller structure-complex, is the most impressive of the four. Originally, this shrine was smaller in dimension and squarish on plan with paved path and enclosure wall. Subsequently, however, this was converted into an octagonal shrine with square *prakaras* paved with bricks. The shrine shows three phases of construction. Unusually large number of terracotta heads of Buddha were recovered from the shrine. The shrine was approached from

the west. The third shrine, located towards south of the first one, is squarish on plan, exhibiting two phases of construction. In the first phase, the entrance was on the west but was changed to the south in the second. Unlike the other two shrines, it has no sanctum and instead a small *stupa* was noticed over a huge platform of baked bricks. The *stupa* is not in the centre of the platform but is raised nearer to the northern arm, but in the centre of east-west axis. A number of walls of baked bricks, forming part of house-complexes, underlying the second and third shrines indicate that these shrines were built over secular structures, a feature noticed in other parts of the township as well. The fourth shrine, located close to the cistern-like structure and north of the larger structure complex, has a squarish sanctum with its entrance towards the east. The structure is of two phases and a drain runs all along its periphery.

The habitation deposit is divisible into four periods. Period I *(circa* eighth century-sixth century B.C.) is characterized by various wares including: black-polished ware; fine grey ware; red ware vases and dishes with reddish rim, blackish bottom and greyish interior, associated with the Painted Grey Ware in western parts of north India; and red ware bowls and dishes with a mirror-like polish, occasionally painted in black dots and circles.

Period II *(circa* sixth century-second century B.C.) is distinguished by the appearance of the Northern Black Polished Ware, red ware painted in black horizontal bands and other associated wares.

Period III, belonging to the Sunga times, may be dated from the second century B.C. to the beginning of the Christian era.

Period IV, assignable to the Kushan times, is datable from the beginning of the Christian era to the end of the fourth century A.D.

Noteworthy among the other finds are: beautiful heads of Buddha (pl. LIII A), seated Buddha on a lotus throne in *dhyana-mudra* (pl. LIII B), warriors and drummer, mother with a child in her lap, ornamented female figurines (pl. LIVA) with elaborate coiffure and decorated anklets in their feet, dancing figurines (pl. LVA), a three-eyed head (Siva?) with heavy *kundalas* in the ear (pl. LVI A), a head with peculiar head-dress (pl. LVI B), animal figurines, all in terracotta; a decorated stone disc (pl. LIV B) depicting bull, elephant and lion interspersed with *chakra,* similar to those on the abacus of Asokan pillars; a pair of heavy anklets (?) in copper alloy (pl. LV B); copper and silver coins; terracotta stamps, dabbers, beads, bangles, wheel and gamesman; beads of glass and semi-precious stones; stone-weights; chisels, sickles, arrow- and dagger-heads, knives and a razor of iron; copper bowl; glass bangles; and a highly polished legged stone quern with a pestle.

Excavation at Salargarh, 200 m east of Piprahwa, revealed a monastery of Kushan period. It is rectangular on plan and contains many rooms in a row and also one behind the other. The layout of this monastery differs from that of Piprahwa in that the courtyard is mostly absent and the rooms are usually interconnected. The monastery is approached from the north through a flight of steps.

A small *stupa* was also encountered to the north of the monastery. Originally, the base of the *stupa* was circular but was subsequently converted into a square. On the basis of the size of the bricks, the *stupa* of the earlier phase appears to be contemporary with the *stupa* of the first phase at Piprahwa.

70. EXCAVATION AT JAKHERA, DISTRICT ETAH.—In continuation of the last year's work(*1974-75,* pp. 43-45), the Department of History, Aligarh Muslim University, Aligarh, resumed excavation under the supervision of Professor Irfan Habib, directed by Shri M. D. N. Sahi and assisted by Sarvashri E. Hoda, S. Saeedul Hasan, N. H. Zaidi, S. H. Haider, A. Alavi and Kumari Naheed Sabir. The present season's work has thrown more light on the pattern of settlement of the Painted Grey Ware using people, besides confirming the last season's cultural sequence.

Period I distinguished by black-and-red, black-slipped and red wares, is devoid of any painted pottery. Though the area excavated is limited, the excavation brought to light well-laid compact and smooth floor with burnt patches, marked by post-holes. An oval hearth, partially damaged, was noticed over this floor. No associated finds were recovered from this level.

Period II is divisible into two phases, A and B. Sub-period IIA is marked by the occurrence of painted pottery, the pigment being black on various shades of red. Painted designs include linear patterns, consisting mainly of set of parallel lines. The ceramics of the preceding Period also continued to be used in this Period. Large-sized lids or pottery-rests are the new forms in pottery shapes. Other finds of this Period include terracotta human figurines and triangular objects. Iron objects were represented by lone example of a rod.

Sub-period IIB is characterized by the appearance of a fine variety of Painted Grey Ware and a plain grey ware, besides pottery of the earlier levels.

Structural activity of Sub-period is represented by more than twenty successive well-laid mud-floors. The disposition of the post-holes in single and double rows, suggests that the structures were both rectangular and circular on plan. Houses were generally of wattle and daub and occasionally of mud bricks as indicated by the presence of some mud brick-bats. Besides, some potter's kilns were also encountered. A feature of interest which, however, needs confirmation is a road, 4.25 m in width, oriented east-west and paved with potsherds, belonging to early levels of this Sub-period. This stretch is seen flanked on either side by mud floors and circular refuse pits subsequently reused. The associated finds include: beads of semi-precious stones, antlers; waste cores and flakes of quartz and jasper; pottery discs, plain and decorated terracotta wheels; terracotta objects like balls, spindle whorls, gamesmen, dabber, hand-modelled female and male figurines, bearing heavy incised decoration, which have been found for the first time in the Painted Grey Ware level; iron objects such as axe, spear-head, fragment of a sickle, tanged arrowheads, dagger, chisels, nails and slags; and copper objects including antimony rods, a needle and some indistinct objects.

Period III is marked by the appearance of the Northern Black Polished Ware, besides the ceramics of the preceding Periods. The associated finds include: pottery discs, decorated with incised bow and arrow design; terracotta objects such as nails, gamesmen, reel ear-studs, bangles and dabber; bone objects like points, arrowheads, beads and antlers; copper objects, including antimony rods, fragments of unidentified objects; and faceted beads of semi-precious stones. A number of unfinished bone points may suggest that the bone objects were manufactured at the site itself. Iron objects are represented by fragments of knife, sickle, spear-heads, rods, lumps and slags, etc.

Important discovery of the season is of a channel or moat (?) below the south-western part of the mound facing the river. This depression was traced to a length of about 40 m. Mud bunding was traced on the northern side of the site at the highest point. The channel and the mud bunding circumscribe part of the mound on the south-western side only. The occupation in this Sub-period did not extend beyond the present limit of the mound.

71. EXCAVATION AT KAMPIL, DISTRICT FARUKKHABAD.—Professor K. K. Sinha of the Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University undertook excavation at Kampil from where the Painted Grey Ware sherds had been collected earlier in 1961-62, the objectives being to ascertain the limits of the habitation of the Painted Grey Ware people. Six trenches, KPL-1 to 6, laid at several places on the periphery' and centre of the mound, which is nearly 1 sq. m in extent, were taken up for excavation, besides conducing section-scraping in many places. In all the trenches the natural soil was reached without much variation. However, a drop of approximately 3 m from the centre of the mound was noticed between KPL-2 and KPL-4. The Painted Grey Ware deposit above the natural soil exposed in limited area, is 2.40 m in thickness. The debris overlying this deposit belongs to the

late medieval period. The associated wares are fine grey, black-slipped and black-and-red wares. An interesting feature of the ancient settlement was a mud-embankment, rising to a height of 1.70 m.

From the levels of the medieval period, sculptural pieces were recovered. The sequence obtained from the limited area in KPL-2, however, may not be universal in all the trenches and therefore needs to be checked through further work.

72. EXPLORATION IN DISTRICT HARDOI.—In the course of exploration Dr V. N. Misra of the Department of Archaeology, Poona University, Pune, discovered a hoard of ten copper axes at Madnapur, 19 km east of Allahganj on the Allahganj -Saudi road, as a result of ploughing operations in the field of Vishram Bhurji as reported by Shri N. S. Agnihotri of Shahjahanpur. Digging at the findspot and the surrounding area, however, did not reveal any occupation-strata thus confirming earlier evidence from similar sites at Sarthauli and Chaka in District Shahjahanpur.

The findspot, originally a forest area, was brought into cultivation through successive levelling. The hoard consisted of one heap of axes, sticking together, among which two were found broken and other exhibited cracks in the middle at the junction of the butt and the edge, a technical flaw in casting. Nine of the ten, of varying sizes, are of the shouldered type with pronounced splayed edge similar to Indilapur axe, the remaining one being of a square type with splayed edge. The axes measure 15 to 23.80 cm in length and weigh 1025 to 1950 grams. Two of the shouldered axes bore incised design of a humped bull (pl. LVII), one with a continuous line and the other with broken lines, whose body being filled with short stroke-like incisions. The design in all probability was done with the help of a chisel. On another, impressions of thumb and finger were noticed, obviously transferred from the original clay mould itself. These features are not present in any other implements of earlier hoards and as such are noteworthy.

73. EXCAVATION AT JAJMAU, DISTRICT KANPUR.—In continuation of the last year's work (*1974-75,* p. 48), the Department of Archaeology, Government of Uttar Pradesh, under the direction of Shri R. C. Singh, assisted by Sarvashri Hem Raj and R. C. Saxena, resumed excavation with a view to ascertaining the cultural sequence of the site. The occupational debris, 11 .50 m in thickness, revealed two periods, the earlier belonging to the Mauryan and the later to the Kushan period.

Period I is characterized by the Northern Black Polished Ware, red slipped and red wares. In red ware, incurved bowls predominate and continue in the succeeding period also. The straight-sided bowl of fine fabric in red slipped ware is available in large number.

Structural activity of the Period is represented by two parallel walls of baked bricks (48 x 24 x 7 cm) of 2.20 m width, running east-west, exposed to a length of 9 m, with a gap in between filled up with uniform yellowish compact earth and clods. This space between the walls is divided into boxes, each separated by 2-80 m, one of the arms being of mud bricks. An interesting feature is that the foundations were of rammed brick-bats and compact earth, over which two or three courses of headers were laid. The associated finds include: objects of bone such as awls, styli, arrowheads; beads of agate and carnelian; terracotta *dampati-plaque,* sealings; ivory seal; and unincribed cast coins. The ivory seal shows the face of a lion with the legend in Brahmi characters of third century B.C. reading *vasalas.*

Period II is marked by a spurt in structural activity of baked bricks (38 x 24 x 55 cm) divisible into three phases. Foundations were normally of rammed brick-jelly of thickness varying between 10 to 15 cm. Two rooms, measuring 1.80 x 1.38 and 1.80 x 1.50 m, paved with baked brick flooring, were exposed. One of the rooms had a 63-cm wide entrance. Another interesting structure is a soak-pit, belonging to the earliest phase, measuring 3.65 x 0.85 x 0.50 m,

with sixty courses of bricks and connected by five drains for the disposal of waste water. From this was recovered a circular terracotta sealing inscribed in Brahmi characters of the early Christian era reading *Raja Vasistha putrasya Sri Bhimasena,* possibly a ruler of Magha dynasty. The sealing shows above the legend a bow and arrow and below the legend a bull standing in front of a female with her left hand resting on her hip. Noteworthy shapes in the ceramics are ink-pot type lids. Other finds of this level include: terracotta human and animal figurines, skin-rubbers; stone lids; bone awls; pieces of bangles of bone and ivory; and terracotta sealings. Iron is represented by arrowheads.

74. EXCAVATION AT MATHURA, DISTRICT MATHURA.—In continuation of the last year's work *(1974-75,* pp. 48-50), Shri M. C. Joshi of the Excavations Branch (II) of the Survey and Dr C. Margabandhu of the Western Circle of the Survey, under the general direction of Shri B. K. Thapar, and assisted by Sarvashri R. C. Agarwal, Avtar Singh, J. N. Gandhi, Puran Singh and D. K. Malik of the Excavations Branch (II), Delhi, and Sarvashri S. N. Raghunath, A. K. Sharma and R. K. Roy of the Excavations Branch (I), Nagpur, and Sarvashri S. N. Jayaswal, Jassu Ram, R. K. Sehgal and N. S. Sharma of the Headquarters office of the Survey conducted excavation at Mathura. Besides imparting field training to the students of the School of Archaeology, the main objectives of this season's work were: (i) to locate the earliest habitational levels; (ii) to assess further the nature and details of the early historical deposits; and (iii) to examine the character and contents of elevated mass of earth with an L-shaped plan near Krishna Janmasthan (Katra mound), appearing to be something like inner fortification.

With these aims in view, following sites were taken up for excavations: Ambarish Tila (MTR-8), towards the northern end of the present Mathura city, close to the river Yamuna; a part of earthen mass in the northern extension of the Katra Mound (MTR-9), near Krishna Janmasthan; a site in Geeta enclave (MTR-10) in the vicinity of Bhuteshwar Railway Station; and Gol-Para (MTR-11), a tube-well site in the heart of the city about 100 m west of the river Yamuna. Besides, further digging was also conducted at Kankali Tila (MTR-5) in the already exposed tank-complex for further details.

The excavation in most of the sites confirmed the cultural sequence obtained earlier, except at MTR-8 and MTR-11, where the earliest and later cultural horizons were represented by the Painted Grey Ware and some medieval floor levels respectively. Consequently, modifications were made in the scheme of periodization as under.

Period I (*circa* sixth century to the closing decades of the fourth century B.C.) characterized by the presence of Painted Grey Ware and other associated pottery, is divisible into two phases A and B. Sub-period IA is characterized by two structural levels, the earlier represented by a floor with post-holes and the later by a partially extant mud-platform. Along with the Painted Grey Ware (fig. 5), the principal ceramics of this Sub-period, were red ware, some sherds of black polished ware and a few sherds of black-and-red ware of inferior quality, besides some plain grey ware sherds. The Painted Grey Ware is represented by bowls and dishes of known forms and fabric with paintings in black and occasionally in white. A few interesting designs, besides popular ones, include groups of parallel horizontal lines between two verticals, latticed frames and hook-shaped curves around spirals. Other finds include terracotta discs both plain and decorated, fragment of a conch, a bone arrowhead, two broken styli and a terracotta amulet.

Sub-period IB, associated with remains of a few mud floors, did not show any major change in the ceramic industry. However, fifteen sherds of the Northern Black Polished Ware, of which three are thicker than the normal, with steel-black lustre on the exterior and unslipped red on the interior, were also encountered. Some new designs such as herring-bone, two groups of oblique lines forming an apex, and dots within circlets on miniature bowls were noticed in the Painted Grey Ware.

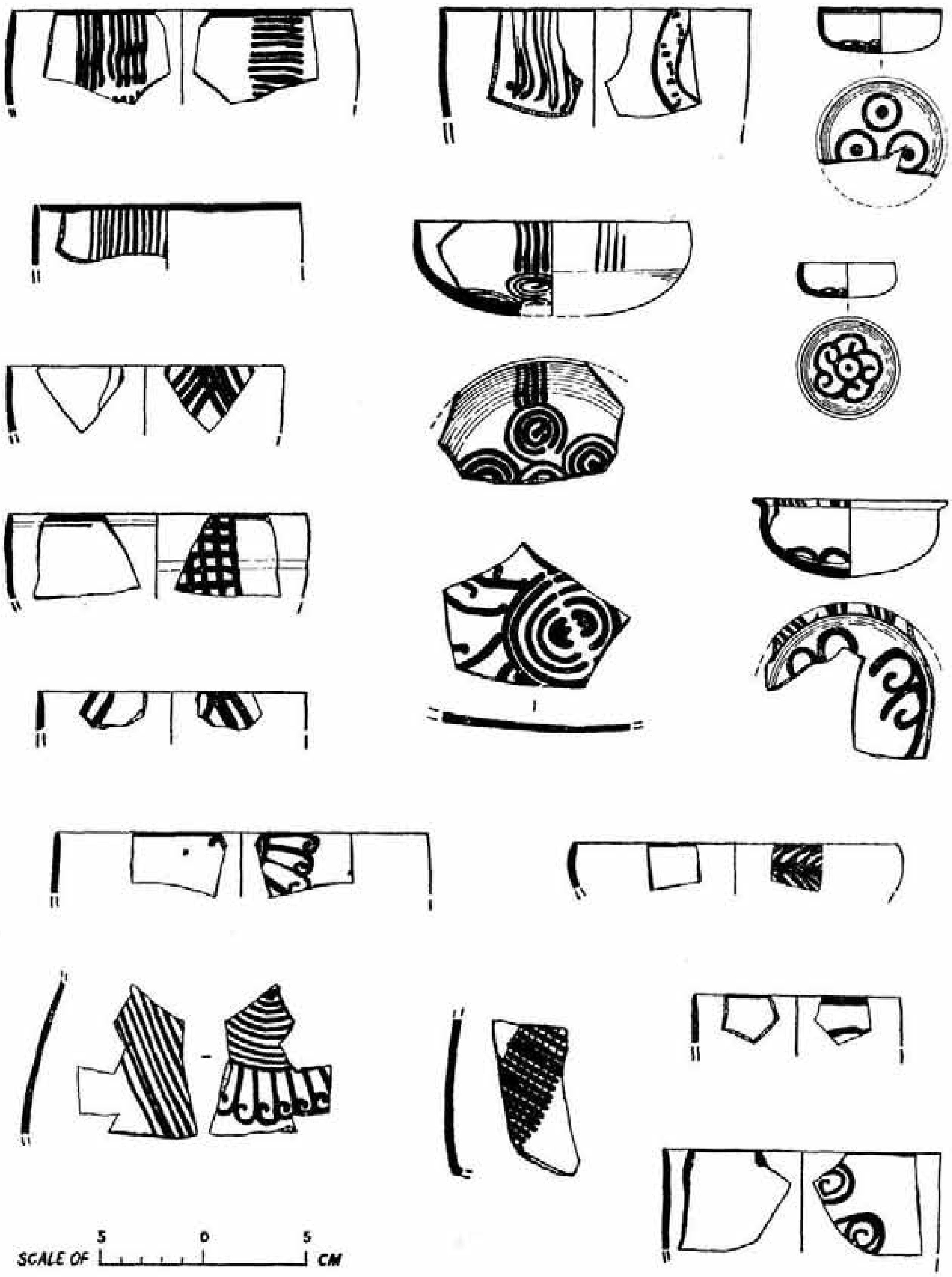


FIG. 5

Noteworthy finds of this Sub-period are: a disc of transluscent glass; and conical knob-shaped and straight-sided gamesmen, figurines of a bird, a torso, decorated hind part of an animal, an unperforated gadrooned bead and a perforated hopscotch, all of terracotta.

Period II is marked by the occurrence of a number of compact mud platforms of considerable height, containing ring-wells of 55 to 90 cm diameter and mud floors, of which one had rows of post-holes (pl. LVIII A) and another circular pits and marks of burning. One of the platforms in MTR-9 had large-sized baked brick (64 x 42 x 7/9 cm) facing (pl. LIXA). Dislocated soakage jars, possibly forming a drain, were also encountered. Ceramics of the Period consisted of the Northern Black Polished Ware and associated wares, besides the plain grey ware. Noteworthy finds of the Period include: a square punch-marked coin of copper; broken spear-head of iron; bone points; objects of terracotta such as fragmentary bangles, beads, toy-wheels, human and animal figurines; and beads of ivory, topaz, amethyst and other semiprecious stones. Among the terracotta figurines, mention may be made of the head portion of an elephant with painted lustrous surface in the Northern Black Polished Ware tradition from the early levels of the Period, mother goddess, riders (?), a wrestler, monkeys in funny moods, elephants and a toy ram with decorated body, mostly in grey colour.

Period III marks the last phase of the Northern Black Polished Ware level. But a few interesting ceramic forms, especially pots with a single stamped motif and ordinary spouted jars in red ware were also encountered. This Period is characterized by the baked brick structures predominating over the mud structures. Structural vestiges in MTR-8 consist of a fallen burnt brick structure, mud platforms, ring-wells, rammed floors of mud and brick-jelly and in one case pot-sherds. A room with a jar inside was also exposed. Notable finds of the Period include: terracotta plaques with female figures, a male lute player (pl. LX A) and frontal view of bullock-carts, a seal reading *yupalathikas;* and a few cast copper coins.

Period IV is marked by remains of walls and a drain in baked bricks and mud houses. A significant feature of the Period is the construction of an inner enclosure of fortification of mud, now represented by long elevated earthen pile in the Katra area. A cutting (MTR-9) across this inner fortification revealed that it was raised on the structural remains of the previous Period by providing packings of wet mud and clay lumps, in oblique fashion which were then further strengthened by a retaining wall of discarded bricks, brick-bats, tiles and burnt lumps of mud along the outer edge. The width and height of the retaining wall varied from 22 cm to 40 cm and 80 cm to 1-0 m respectively. The maximum basal width of the inner fortification was about 17 m. At its base on the outer side were found remains of animal bones and ash in a pit (pl. LVIII B), but its ritualistic association could not be determined with certainty.

The pottery and antiquities recovered from the mud-fillings of this fortification belonged to Periods II III and IV. The pottery types of this period, with the exception of an inscribed amphora handle, a handle embossed with a female figure and some new symbols in stamped sherds are similar to those encountered in the earlier excavations. Noteworthy finds of the Period, however, are: seal and sealing with legends *Bhutapala-sa - gamasa* and *Maharaja Tra* (?) *mah* respectively; soapstone lids; a terracotta stamp engraved with a stylized peacock and ivory stand, Kushan coins, and several human and animal terracotta figurines, modelled by a single and double moulds and fully and partly handmade with sophisticated and crude features. Interesting among the terracotta figurines are the mother and child (pl. LX B), lower part of a figure, probably of Ganga, *vamanakas,* mould *of yakshi* (pl. LXI A), similar to those found on contemporary railing posts, a Saka or Kushan soldier (pl. LXI B), a princely figure (pl. LXC), representations of females, including that of a foreign lady, *nagas,* Bodhisattva Maitreya (?) and Gaia-Lakshmi. In the tank-complex a platform-like projection (pl. LIX B) was found at its south-west comer besides certain later structural remains over the tank's western wall.

Period V is represented by a few floors of mud and brick-bats and a sealing reading *Sri Ravilah* and *Jitam bhaga (vatah).* No other significant object was recovered from this level.

75. EXPLORATION IN DISTRICT MIRZAPUR.—During the course of exploration, Shri R. C. Singh of the Department of Archaeology, Government of Uttar Pradesh, assisted by Sarvashri Hem Raj and R. C. Sexena, located rock-shelters with paintings and sites, yielding Northern Black Polished Ware and medieval temples.

Rock-shelters were found at Dholakia Pahar, Jatwa Pahar, Kirahia Pahar and Sam-Devi-ka-Pahar. The rock-shelter, situated on the western side of the hill, known as Sam-Devi-ka-Pahar, near Bairampur, about 8 km from Ahraura, contains paintings executed only in red ochre on the projected rock of the entrance, depicting figures including animal, bird, sun and wavy lines in rectangular form. Most of the animals are shown in running posture. The bull, although small in comparison to others, has a very prominent hump. One of the animals is depicted as struck with a harpoon, shot from a bow. The rock-shelter at Jatwa Pahar, locally known as Hathi-ka-Darna, situated on Ahraura-Chunar road, near Roshan-Har, has painting in red ochre, depicting human, elephant, deer, bird, etc. The river Kalklia flows about 50 m away from the hill. The rock-shelter at Kirahia Pahar, locally known as Lorika-ka-Darna, lying in the Jargo Dam near Ikli village, has paintings in blue, black and red ochre colours, on the surface of the wall. The figures include stylistic horse, deer, elephant and human figures besides a rectangle with various designs. The rock-shelter at Dholakia Pahar, locally known as Sita-ki-Kohbar, has paintings executed in red ochre depicting stylistic animal, human and bird figures. A chert flake showing scars was also found near the shelter.

The sites at Ahraura-Dih, Bhagwati Devi, Madapur and Madarpur yielded sherds of Northern Black Polished Ware, whereas medieval temples were located at Bara-Dih Bhagwanpur, Burh-Bhuili, Mirapur, Patita, Roshanhar and Sonpur.

76. EXPLORATION IN DISTRICT MORADABAD.—In the course of exploration, Shri R. C. Gaur of the Aligarh Muslim University, assisted by Shri M. D. N. Sahi, located sites, yielding Ochre Coloured pottery, plain grey which is usually associated with the Painted Grey Ware, and early historical sites.

Karawar Khera, 6 km from Bilari on the Bilari-Seondara road, yielded red and crude grey wares, represented by vases, basins, bowls, knobbed lids and disc-based vases. The earliest habitation on the mound may be dated to early Christian era, on the basis of pottery and the bricks recovered, but a few sherds, resembling Ochre Coloured pottery, indicate possibility of still earlier occupation. The mound is traditionally associated with king Karna of the Mahabharata.

Khera Khas, close to Sarthal-Khera, yielded exclusively red ware, ranging in time from the early centuries of the Christian era to the medieval period. The shapes represented are vases, pots, knobeed lids, bowls and spouts. A few wells, constructed of bricks, measuring 40 x 24 x 5, were also noticed. Besides, a sandstone head, some broken terracotta objects were also collected.

Sambhal, the Taluk headquarters, is located on the ancient mound, perhaps the ancient Sambhalpur of the Puranas. Ceramics include pieces of lids, vases, jars, spouts, etc., in red ware, assignable to *circa* eighth-eleventh century A.D.

Sarthal Khera on the Chandausi-Sambal road, 10 km south-west of Bilari, with a high mound, measuring 365 x 300 m, yielded Ochre Coloured pottery (?), fine grey ware, which is usually associated with the Painted Grey Ware and early historical and medieval wares. The shapes encountered are vases, knobbed lids, basins, storage jars, globular pots, etc. The lids and vases with stamped designs, probably belonging to the early Christian era, were also picked up. The medieval glazed ware with red gritty core has either one or both sides glazed uniformly in different shades of green. Other finds collected from the site include: terracotta animal figurines, gamesmen; pottery discs; sculptures, representing male and female heads, Ganesa, Siva-Parvati, cow and calf, ranging in date from post-Gupta to medieval times, of which a bracket (?), carved in the form of male human figures in peculiar pose with a mortice hole in the chest, a *kankar*

piece depicting a lotus medallion, and a large number of architectural pieces such as door-jamb with figures of Varaha, Dikpalas, Siva, Parvati, etc. The sculptures were collected and fixed in the local temple adjacent to the pond known as Ram Sagar.

77. EXPLORATION IN DISTRICT PHILIBHIT.—In the course of exploration in the area around Balpur, Shri C. B. Mishra of the Northern Circle of the Survey, located a site situated 10 km south-west of Sitaraganj, yielding pottery datable from the Kushan period to *circa* tenth century A.D., besides bricks of various sizes, a grinder, a pestle and quern, decorated stone plates and terracotta figurines, datable to the seventh century A.D. A sculpture, representing human head of and an *ekamukha-linga,* the Kushan and late Gupta times respectively, and a Sri Pratapa type of electrum coin of Pratapaditya of Kashmir, were also collected from the site.

WEST BENGAL

78. EXPLORATION IN DISTRICTS BANKURA, DARJEELING, MURSHIDABAD, PURULIA AND WEST DINAJPUR.—-In the course of exploration, Shri P. C. Das Gupta of the Directorate of Archaeology, Government of West Bengal, assisted by Shri D. K. Chakravarti and Dr S. C. Mukherji, discovered sites and mounds yielding remains, datable from the Palaeolithic period to the medieval times. Mounds at Dihar and Saragdhi in District Bankura yielding characteristic chalcolithic pottery such as red, black-and-red, grey, black-slipped wares and the Northern Black Polished Ware. Some of the sherds in black-and-red and red wares show paintaings over them. Besides, microliths and beads of semi-precious stones were also picked up.

Neolithic celts and adzes, including perforated ones, were discovered at Durga Basti, Pedong and Pudung in District Darjeeling.

Gitagram (Saidur Danga), in District Murshidabad, yielded neolithic celts and chalcolithic pottery, including red, black-and-red and grey wares, besides microlithic flakes and beads of semi-precious stones. The site at Farakka, near the confluence of the Bhagirathi and the Gumani, in District Murshidabad, yielded early historical remains, including ring-wells, terracotta figurines such as Mother Goddess, mother and child, male and animal figurines, silver punch-marked coins, beads of semi-precious stones, bone and shell objects, antlers, sling balls, net-sinkers, and flesh-rubbers.

Barabhum and Sargo in District Purulia yielded Palaeolithic handaxes and microliths.

Shri P. Mitra, Registering Officer of the North Bengal circle of the Directorate of Archaeology, Government of West Bengal, discovered a site at Asuragarh in District West Dinajpur, yielding vestiges, ranging in date from early historical to medieval times, including terracotta objects such as Mother Goddess, toy cart of Sunga-Kushan period, bricks of early medieval period and a head of a *Tantric yogi,* datable to early medieval period.

79. EXPLORATION IN DISTRICTS BIRBHUM, BURDWAN AND MIDNAPORE.—The Department of Archaeology of the University of Calcutta carried out exploration in parts of the valley of the Tarafeni river, a tributary of the river Kangsavati in Silda region of Jhargram sub-division, and parts of the river valleys of the Ajoy-Kunur-Khari, Bakreswar and Mayurakshi in Districts Birbhum and Burdwan. To complete the picture a section at Shilda on the Tarafeni in western part of the District Midnapore was also surveyed. The sites and their cultural assemblage are as follows.

(ML=Microliths; NL=Neolithic; CL=Chalcolithic; EH=Early Historical;H=Historical; M=Medieval; BW=Black Ware; BRW=Black-and-Red Ware; BSW=Black Slipped Ware; GW=Grey Ware; NBP== Northern Black Polished Ware; BSP=Beads of semi-precious stones; PR = Polished Red Ware; TC=Terracotta objects; PMC=Punch-marked Coins; IO=Iron Objects; and S=Sculptures of post-Gupta Period)

District	*Village/site*	*Cultural assemblage*
Birbhum	Ballabhpur	CL (?), ML, BRW
-do-	Dubrajpur	GL (?), ML
-do-	Haraipur	GL (?), ML, BRW, BSP
-do-	Jhinaipur-Keoda	CL (?), ML, NL, BRW, PR
-do-	Kotasur	ML, EH, BRW, NBP, TC, H
-do-	Mahishdal	ML, CL, EH, BRW, IO
-do-	Potanda	EH, BRW
Burdwan	Baneswar Danga	CL to M, ML, BRW, IO
-do-	Basantpur	ML, CL, BRW, PR
-do-	Bharatpur	ML, CL, BRW, EH, H, IO
-do-	Eruar	CL, EH, BRW, IO
-do-	Indrani	NBP, EH, H, GW, BSW, BW, TC, S
-do-	Kelugram	CL, EH, BRW, BSW, BW, GW
-do-	Kharajnpur	CL, ML, BRW
-do-	Kusumgram	CL, EH, BRW
-do-	Malandighi	ML, CL, BRW
-do-	Mandalgram	CL to M, BRW
-do-	Mangalkot	ML, CL, EH, H, M, BRW, NBP, IO, TC, PMC
-do--	Raigram	CL, EH, BRW, NBP
-do-	Santal danga	CL to M, ML, BRW, IO
Midnapore	Dhulia Pahar	NL

Study of the section at Shilda revealed the following stratigraphy from bottom upwards:

(i) sterile granitic bed-rock, sometimes decomposed gneiss;
(ii) sterile, coarse gravel at some places;
(iii) sterile clay silt;
(iv) implementiferous, detrital laterite, yielding two handaxes and fossilized animal bones; and
(v) laterite gravel with stone fragments on an implementiferous level of earth and coarse granules mainly of quartz, with microlithic tools embedded.

80. EXPLORATION IN DISTRICTS MIDNAPORE AND PURULIA.—In the course of exploration, Dr M. Bhattacharya of the Department of Anthropology, Calcutta University, along with Post-graduate students, discovered prehistoric and ethnographic sites in these Districts. Dumurgonda on the bank of the river Tarapheni in District Midnapore, yielded a rich collection of microliths, including cores, blades, triangles, scrapers, tanged arrowheads, etc. From the yellowish dark soil deposit underlying loose red soil a few pieces of polished celts and ring-stones were also obtained.

In the uplands of the State, megalithic sites were located at Orgonda, 5 km north-west of Silda in District Midnapore and Bukadih, Burda, Charloma, Denil, Dugda, Kontadih, Koira, Mudali, Patahesal, Phelsataur, Samsandih, Teashi and Uldih, in District Purulia. Types of megalithic burials include menhirs, dolmens, composite type of menhir and dolemn,

flat stones and stone-circles. Menhirs vary in height from 30 cm to 2.0 m. Of these the stone-circles were noticed only in District Midnapore.

It is interesting to note that people of Bhumij, an offshoot of a Mundari type, speaking a dialect of Bengali with profuse Panchaparganait traits, practice megalithism and even today go to their ancestral village for secondary disposal in respect of their dead relatives. In all probability the megalithic sites represent the ancestral home of the Bhumijes.

The lost-wax process of metal-casting was found to be practised even today by a nomadic people calling themselves as Mahan, camping at about 2 km west of Kantidih Railway Station.

II. EPIGRAPHY

SANSKRITIC AND DRAVIDIC INSCRIPTIONS[1]

ANDHRA PRADESH

1. HERO-STONE FROM ETHUR, DISTRICT CHITTOOR.—Recording the death of a hero, in a catt'e-raid at Mangala, it mentions the king Kannara-deva whose subordinate Vijjaradeva was governing Pulinadu. The chief Vijjaradeva is evidently identical with Vijjaladeva, of the Embadi inscription, who was ruling Pulinadu during the reign of Sri Ballaha, i.e., Rashtrakuta Krishna III, in Saka 887. The engraver of the inscription was Vikramaditya of Koyatur, the place being identified with Laddigam in Punganur Taluk of District Chittoor.

2. NOLAMBA INSCRIPTION FROM KARASANAPALLA, DISTRICT CHITTOOR.—Belonging to the Nolamba-Pallava dynasty, it gives a short genealogy consisting of Dilipa Iriva-Nolamba, Nanni Nolamba, Polalchera and the grantor Vira-Mahendra Nolamba and mentions that the latter while camping at Kolala in Ganga 1000 conferred on a private individual the rank of an officer together with a village in Pulinadu as a personal field. This Vira-Mahendra Nolamba, stated to be the conqueror of Chola-nadu, was sixth in descent from the famous Mahendra I, the grandfather of Dilipayya.

3. FRAGMENTARY INSCRIPTIONS FROM AMARAVATI, DISTRICT GUNTUR.—Three inscribed coping slabs, containing records of the first century A.D., refer to the gift of three elephants *(tinihasthi)* for the construction of rail *(vedika)* by a devotee of the Mahavina-seliya sect (pl. LXII A). An octagonal umbrella shaft *(chhatatabho)* was found to bear a donatory record of the first-second century A.D.

4. INSCRIPTIONS FROM KAPOTESVARA TEMPLE, CHEJERLA, DISTRICT GUNTUR.—Clearance-work around the temple yielded Prakrit, Sanskrit and Telugu inscriptions, dating from the third to the eighth century A.D. The earliest epigraph in Brahmi characters of about the third century and in Prakrit language on one of the faces of the octagonal shaft reads *Majhatha Mara \cha*. A Sanskrit inscription of the fourth-fifth century on another face of the same shaft reads *Gandharva-sannaha;* on the squarish face of the upper part is engraved the third inscription, of the seventh century, in Telugu language referring to *Sri-Gandado[n]ndu Klottaruri.* Two other Telugu inscriptions, of the eighth century, came from this temple.

5. INSCRIPTION OF KANDURI-CHODA DYNASTY, NALLEPALLI, DISTIRCT GUNTUR.—Dated Saka 1158 (A.D. 1236), it belongs to Bhimaraju of Kanduri Choda dynasty and records the donation of Kambalapalle to god Mahesvara of Uma-Mahesvara, the Uttaradvara of Srisai'am.

6. INSCRIPTION OF REDDIES OF KONDAVIDU, TANGEDA, DISTRICT GUNTUR.—Dated A.D. 1391 and belonging to Komaragiri, son of Anavotareddi of the Kondavidu Reddy family, it

[1] Information from : 1, 2, 5-7 and 9-15, the Director of Archaeology and Museums, Andhra Pradesh ; 3 and 8, South-eastern Circle of the Survey ; 18 and 19, the Director of Archaeology, Gujarat ; 23 Director of Archaeology, Kerala ; 26, Director of Archaeology and Museum, Madhya Pradesh ; 27, 28, Prehistory Branch of the Survey ; 30, Director of Archaeology and Museums, Maharashtra ; 44, 46, State Museum, Lucknow ; and the rest from the Chief Epigraphist, Mysore

records the grant for flower garden, perpetual lamps and worship of the god by certain merchant guilds.

7. INSCRIPTION OF KAKATIYA PERIOD FROM VUTLAPPALI, DISTRICT GUNTUR.—Dated Saka 1150 (A.D. 1228), it records the grant of the village Utalapalli to god Sikharesvaradeva of Sri-parvata by *mahamandalesvara* Pasayita, son of Ganapaya and Jakkamamba for the merit of his master.

8 IKSHVAKU INSCRIPTION, ALLURU, DISTRICT KRISHNA.—An *ayaka* pillar near the *stupa*-mound contains a third-century inscription dated in the eighth regnal year of Ehavula Chamtamula, the Ikshvaku king of Vijayapuri (Nagarjunakonda). The place is mentioned as 'Halura' i.e. Alluru and the inscription states that one Venhusri, a resident of Halura, and his associates had installed the pillar as a pious gift to the *acharyas* of the Purvasaila sect.

9. INSCRIPTION OF KRISHNADEVARAYA, CHENNIPEDU, DISTRICT MAHBUBNAGAR.—Dated A.D. 1529, it attests to the fact that Sri-Krishnadevaraya ruled over Alampur-sima.

10. KAKATIYA INSCRIPTION, KALUVAKOLANU, DISTRICT MAHBUBNAGAR.—Belonging to the reign of Kakatiya Prataparudra, it records a gift made by Prolaya-reddi, son of a *mahasamanta* Cheraku Jagaddala Immadidevaraya.

11. TEMPLE-INSCRIPTIONS, PRAGATUR, DISTRICT MAHBUBNAGAR.—The old Siva temple inside the dilapidated fort contains four inscriptions, of *circa* tenth century, recording gifts of land and garden to the god Lakulisadeva by his devotees.

12. INSCRIPTION OF KAKATIYA PERIOD, ETIKALA, DISTRICT MEDAK.—Dated in Saka 1061 (A.D. 1139), it registers some grant for the maintenance of perpetual lamp in the temple of Visvanathadeva by the members of the Nakharamu from Ittikala, during the time of certain chiefs Gundraju and Hariharadeva belonging to the Kakatiya family ruling from Hanumkonda.

13. TWO DONATIVE INSCRIPTIONS, BATTUGUDA, DISTRICT NALGONDA.—One of the records belongs to certain Kamparaju of Haihaya-pamja and Mahishmatipuravara registering grant of land to Kamesvaradeva, while the other epigraph of the twelfth century refers to the construction of a *mandapa* by Cheena Pregada Mummadi Ganapaya.

14. INSCRIPTION OF KAKATIYA PERIOD, BOLLARAM, DISTRICT NALGONDA.—Dated Saka 1240 (A.D. 1318), it refers to certain gifts made by Cheraku Rudraya Reddi while Kakatiya Prataparudra had been ruling.

15 COPPER-PLATE INSCRIPTION OF PRITHVIMULA, DISTRICT WEST GODAVARI.—The copper-plate belongs to Prithvimula, a feudatory of Vishnukundin Indra-bhattaraka-Varma and Vikramendra-battaraka-Varma.

BIHAR

16. INSCRIPTION ON TARA IMAGE, ANTICHAK, DISTRICT BHAGALPUR.—Engraved on the pedestal of a Tara image, it records, in corrupt Sanskrit written in proto-Bengali characters of the eleventh century the gift of Pratihara Udayavara.

17. SANSKRIT INSCRIPTION, NALANDA, DISTRICT NALANDA.—The inscribed slab, found in

the excavation, records probably the installation of an image of Buddha by Prathama-siva also called Purnavarman, the names of whose ancestors are also given. The *prasasti,* composed by *Sandhi-vigrahika* Durgadatta and engraved by Madhava, the son of Vamana was written in Sanskrit language and Nagari characters of about the seventh-eighth century.

GUJARAT

18. STONE-INSCRIPTION, AHMADABAD, DISTRICT AHMADABAD.—Dated V.S. 1723 (A.D. 1667), it records the promise given by the headman of the village Ramoi to attend to some work entrusted by the then Subah. Discovered from the temple of Maruti the inscribed slab bears the 'donkey abuse symbol' at the bottom (pl. LXII B).

19. FRAGMENTARY STONE INSCRIPTION, PATANVAV, DISTRICT RAJKOT.—Among the fragments of stone-inscriptions found at the *stupa-site* here, one belongs probably to the son of Svami Dama.

KARNATAKA

20. EARLY BRAHMI INSCRIPTION, HAMPI, DISTRICT BELLARY.—The fragmentary inscription on a limestone block excavated near the site of Mahanavamidibba is in the Brahmi characters of the first - second century A.D. It reads : *(u) tarasa putasa.. . .danam* (pl. LXII C).

21. TWO MEDIEVAL INSCRIPTIONS, HAMPI, DISTRICT BELLARY.—Dated in the Chalukya-Vikrama year 1 (A.D. 1076), the inscription engraved on a damaged pavement-slab seems to record in Kannada a gift of eighty *lokki-gadyanas* every year to the teachers who expounded the *puranas* in the *matha* by *Mahapradhana Dandanayaka* Somesvara-bhattopadhyaya. The other inscription, in Telugu, found near a ruined temple at the backside of the Vithala temple belongs to the reign of the Vijayanagara king Sadasivamaharaya. Dated in Saka 1481 (A.D. 1559), it records the gift of house-site to Chikkayacharyalu, son of Peddayacharyalu by *Chatani* Tirumalaya who is stated to have constructed the temple of Modali-aluvar at Srivithalam.

22. RASHTKAKUTA INSCRIPTION, MUTTAGE, DISTRICT BIJAPUR.—This Kannada inscription engraved on a stone block kept in the newly-built Basavanna temple (formerly known as Basavannana-Kottige) belongs to the reign of Kannaradeva (Krishna III). Dated in Saka 886 (A.D. 965), it refers to the conferment of the Tarddavadi 1000 division by him on Taila-arasa (i.e. Taila II of the Kalyana Chalukya family). The latter bearing the epithets such as Samadhigata *Panchamaha-sabda, Mahasamaniadhipati* and *Ahavamalla* is stated to have conferred upon Rachanayya the office of *nalgamundu* and made a grant of 12 *mattar* of land to a certain deity (name lost).

KERALA

23. TWO TEMPLE-INSCRIPTIONS, POONJAR, DISTRICT KOTTAYAM.—One of the records written in Vatteluttu characters refers to renovations carried out in the local temple; the other inscription being in Malayalam also records some renovation.

24. TAMIL INSCRIPTION RECOPIED, TRICHUR, DISTRICT TRICHUR.—Engraved in Vatteluttu characters of about the twelfth century on the tier on the north-west corner of the central shrine in the Vadakkunnathan temple, it records that the stone was set up by Chuvaran, a *Kanattan* of Mullaippalli.

25. TEMPLE-INSCRIPTION, URAKAM, DISTRICT TRICHUR.—The inscription, in the Vatteluttu characters of about the eleventh century, records an agreement made by the administrative assembly of Puriyanur that assembled in this Bhagavati temple for the purpose, to maintain nine daily services (list given) including the recitation of the *Mahabharata,* and the performance of dances in the temple of the goddess Bhatari of the locality.

MADHYA PRADESH

26. PANDAVA COPPER-PLATE, BURHIKHAR, DISTRICT BILASPUR.—The copper-plate appears to be the middle one of a set of three plates and bears eleven lines in the nail-headed variety of the Brahmi script of the fifth century A.D. This inscription of the Pandava dynasty which ruled over the Chhattisgarh region during the fourth-fifth centuries A.D. gives the names of kings Nagabala and Bharatabala and their mothers Dronabhattarika and Indrabhattarika respectively.

27. ASOKAN INSCRIPTIONS, PANGORARIA, DISTRICT SEHORE.—Of the two inscriptions engraved in Mauryan Brahmi characters and in Prakrit language, the first one (pl. LXIII) refers to Piyadasi, the king *{maharaja)* conveying the message of piety through prince *(kumara)* Samva in course of his pilgrimage to U(o)punitha-vihara in Manema-desa. The figure 256 is mentioned at the beginning. The second one (pl. LXIV) is a Minor Rock-edict of Asoka beginning with the expression *Devanampiya.*

28. SHORT INSCRIPTION IN ASOKAN BRAHMI, TALPURA, DISTRICT SEHORE.—A sandstone slab with a single line inscription, *Aditaputasa,* in Brahmi characters of Asokan time (pl. LXII D) was recovered from a house in the village. It also contains the symbols of *triratna* and *svastika,* besides a checker having originally eight squares in eight rows. A stupa-complex is situated at a distance of about a kilometer.

29. INSCRIPTION IN PRIASE OF SURYA, UDAIPUR, DISTRICT VIDISHA.—Written in Sanskrit language and in Nagari characters of about the tenth century, it is an incomplete eulogy of the Sun-god. It contains ten stanzas, all in praise of the god.

MAHARASHTRA

30. VAKATAKA COPPER-PLATES, MANDHAL, DISTRICT NAGPUR.—Of the three sets of copper plates, one belongs to Pravarasena II and was issued from Pravarapura in the seventeenth regnal year, showing thereby that the capital was shifted a year earlier than what is now believed to be. The remaining two charters belong to Prithvishena II issued respectively from Ramagiri-sthana in the second regnal year and from Benvata-tasthana in the tenth regnal year. All the three grants are intact with rings and seals, which are found attached to the grants of Pri-thivishena for the first time.

TAMIL NADU

31. CHOLA INSCRIPTIONS KANCHIPURAM, DISTRICT CHINGLEPUT.—Of the two Tamil inscriptions in characters of the tenth-eleventh century A.D., from the temple of the goddess Karukkinil-amarndaval, the fragmentary one records a gift of tax-free land to the goddess Bhattaraki by the *mahanagarattar* of Kachchippedu following the royal order issued at the

nstance of (the queen) Kodaippirattiyar and executed by the official Vijayanalluian of Alappakkam. The other inscription dated in the thirteenth year and seventy-ninth day of the reign of Udaiyar Rajendra Chola records the king's order conferring upon Vichchadiran Jnanaslva Pidaran and his heirs the right to enjoy the *archanabhoga* (the land endowed for the service of worship) in the temple of the goddess Karukkamarnda Pidariyar at Kanchipuram.

32. HOYSALA INSCRIPTION, BAIRAMANGALAM, DISTRIGT DHARMAPURI.—A Tamil inscription engraved on a hero-stone locally called Irula-devasthanam dated in the thirty-first regnal year (A.D. 1285) of Vira Ramanatha records that Annamalai, son of Vairattoruvalan, a resident of Valilimangahim killed a tiger in the course of a hunt and died.

33. PALLAVA INSCRIPTION, ELLAPPUDAIYANPATTI, DISTRICT DHARMAPURI.—This Tamil inscription in Vatteluttu characters of about the fifth-sixth century A.D. and dated in the twenty-fifth regnal year of Simhavishnu, records the death of Mondaigal Komara-Sattiyaru, ruling over Kalappalur, probably in a scuffle at Mokkappadi.

34. INSCRIPTION, ERUDUKOTTAI, DISTRICT DHARMAPURI.—This Tamil inscription engraved in characters of the twelfth century A.D. and dated in the year Dundubhi, records the installa tion of the deity (Vishnu) by Andal, the wife of Ejnamurti, son of Alkondapillai for the merit of Damattalvar *alias* Puradarayan (Purvadhirajan). It is stated that the temple constructed at Eridakkottai for Chitrameli Vinnagar-emperuman was the charity of the Chitrameli Periyanattar.

35. HERO-STONE INSCRIPTION, KARANDAPALLI, DISTRICT DHARMAPURI.—Dated in the cyclic year Vibhava, this Tamil inscription in characters of about the twelfth century A.D., records the death of a person when Vichchuranpalli was destroyed and cattle were lifted during the rule of Kandar-Suriyan Tribhuvanamalla Puradarayan (Purvadhiraja).

36. HERO-STONE INSCRIPTION, MATTIYAMPATTI, DISTRICT DHARMAPURI.—This inscription in Tamil language and Vatteluttu characters of about the eighth century A.D. is engraved on a hero-stone in the Vediyappan temple at the junction of the Vaniyar and the Pennar. It is dated in the fifty-seventh regnal year, the highest known so far, of Kattinaiparumar.

37. NOLAMBA INSCRIPTION, MUTTANUR, DISTRICT DHARMAPURI.—Dated Saka 847 (A.D. 925) and in the second regnal year of Anniya-Nolamba, this inscription in Tamil language and characters records the death of a hero (name not clear) in the course of a cattle-raid by Valla-varaiyar and Nattar.

38. IMAGE-INSCRIPTIONS, TIRTHAMALAI, DISTRICT DHARMAPURI.—One Tamil inscription in Vatteluttu characters of about the ninth century is engraved on the left upper side of the stone bearing the sculpture of Mahishasuramardini. It refers to the deity as Bhagavati Kuruchchuli. Another Tamil inscription engraved on the halo of the stone image of Surya in characters of the eleventh century records that it is the installation of Sri Isanamurti Kuratti.

39. WESTERN GANGA INSCRIPTIONS, DISTRICT DHARMAPURI.—One inscription from Kattarasampatti in Tamil language and Vatteluttu characters of about the eighth century A.D. is dated in the forty-seventh regnal year of Sivamara. It records the death of a hero in the course of a battle at Kudal during the rule of Kanda-Vannadiaraiyar over Puramalainadu.

Another inscription in Tamil language and Vatteluttu characters of about the eighth century, engraved on a hero-stone from Muttanur is dated in the fifteenth regnal year of Sripurusha. It records the death of the servant of Amaradakkiyar when the cattle from Korramangalam was lifted by Kamaiyanar who is stated to be ruling over the western division of Puramalai-nadu.

40. CHOLA INSCRIPTION, KADIRAMPATTI, DISTRICT NORTH ARCOT.—A Tamil inscription in characters of about the twelfth century and dated in the ninth year (A.D. 1175) of Rajadhiraja (II), records the construction of a pond called Duggappattarkuttai by Vannan-potti, a resident of Madapalli and granting it as a *devadana* to god Angakkarisvaramudaiya-nayanar. A copy of this record is also found engraved in an adjacent village, Konerikuppam.

41. STONE-INSCRIPTION, KONDAPPANAYAKKANPATTI, DISTRICT NORTH ARCOT.—An undated inscription in Tamil language and characters of about the twelfth century and engraved on a slab in a field records that it was a highway *(peruvali)* of Adiyaman and the distance to Navarta-valam is twenty-nine *kadam* from the spot.

42. FRAGMENTARY CHOLA INSCRIPTION, TIRUMALAI, DISTRICT NORTH ARCOT.—Engraved in Tamil characters of about the eleventh century A.D. and dated in the twenty-second regnal year and one hundred seventy-fifth day of a Chola king (name lost), this inscription records an arrangement by which the Jaina temple Tirumalaippalli at Vaigavur was to get 4726 *kalam* of paddy annually.

43. PANDYA INSCRIPTION, TIRUPPANAIYUR, DISTRICT THANJAVUR.—Dated in the fifth regnal year (A.D. 1340) of Maravarman Parakramapandya, this Tamil inscription records an exchange of lands between the temple of Alagiyanayanar in Tiruppanaiyur and that of Muluvanukhisvaram-udaiyar in Kiramangalam, in Panaiyur-nadu, included in Kulottungasola-valanadu.

44. CHOLA INSCRIPTIONS, VALLAM, DISTRICT THANJAVUR.—Of these two Tamil inscriptions from the E-Gauriyamman temple, one dated in the fortieth regnal year (A.D. 946-47) of Parantaka Chola I records a gift of ninety sheep by Anantan-Kari *alias* Pirantaka-Muttaraiyan of Vadakulat-Turuppadi in Eriyur-nadu for burning a perpetual lamp to the deity Bhattaraki. The other inscription dated in the sixteenth regnal year (A.D. 1000-01) of Rajaraja I (A.D. 985-1014) also records an undertaking made by the Parasavas of the fort of the locality to maintain a perpetual lamp to be burnt for Kala-pidari Kaitalaipusal-Nangai of *Karuvugala* Vallam.

UTTAR PRADESH

45. COPPER-PLATE OF THE GAHARWALS, ASAI, DISTRICT ETAWAH.—Of the two charters issued by an official on behalf of the Gaharwal king Jayachandradeva of Kannauj, the one recording the donation of the village Lahu on the full moon day of *Karttika* is dated Samvat 1229 (A.D. 1162).

46. PALA COPPER-PLATE, MIRZAPUR, DISTRICT MIRZAPUR.—The charter containing seventy lines on the obverse and thirty-three lines on the reverse with a seal on its top, is the longest known Pala record. It is dated in the second day of the bright half of the *Asvina* in the third regnal year of king Surapala, the son and successor of king Devapala.

ARABIC AND PERSIAN INSCRIPTIONS[1]

ANDHRA PRADESH

47. INSCRIPTIONS OF THE QUTB SHAHIS, DISTRICT HYDERABAD.—A new but fragmentary inscription recording the construction of a mosque by Mirza Buzurg, in the seventies of the tenth century A.H. (A.D. 1562-1572) during the reign of (Ibrahim) Qutb Shah was found at Golconda.

An inscription of the time of Abul-Hasan Tana Shah recording the construction of a mosque in A.H. 1089 (A.D. 1678-79) and transcribed in beautiful Nastaliq characters by Husain 'AH was found at Shaikpet.

48. MISCELLANEOUS INSCRIPTIONS, DISTRICT HYDERABAD.—A large number of interesting epitaphs was found in the graveyard of the Dargah of Hadrat Mumin Chup and in the Daira Mir Mumin at Hyderabad. They mark the remains of men in different walks of life, mostly of the seventeenth and eighteenth centuries and of Iranian extraction. More interesting of these are the epitaphs of well-known Persian poets Mirza Abu Turab Ridawi of Mashhad, with the *nom-de-plume* Fitrat and Kami (of Shiraz?) who died in A.H. 1060 (A.D. 1650) and A.H. 1045 (A.D. 1635-36) respectively, Mir-i-Miran, very probably the Mughal official who died of a gun shot wound at the seige of Golconda, Amir Rustam Jang Khan, well-versed in different sciences who died in A.H. 1164 (A.D. 1750-51) and Hakim Mirza Ahmad entitled Muhammad Ghiyathud-Din Khan Bahadur Ghiyathud-Daula, son of Hakim Ghiyath and great grandson of Nawwab Hakimul-Mulk Gilani, who died in A.H. 1207 (A.D. 1792-93). The other deceased mentioned in the epitaphs include Agha Husain, Mir Muhammad Mu'in, son of Abdul-Hakim of Tafrish, Khwaja Idrak, Muhammad Rafi', Maulana 'Abdus-Samad, Mulla 'Ali Naqi of Mazandaran, Haji Shah, Mir Murtada, Mir Muhammad Husain Shirazi, Gauhar Sultan, daugthter of Muhammad Sharif, Mir Ahmad, Mir Sharafud-Din Ibrahim, Haya Khanam, Muhammad Zaman Isfahani, Muhammad Mumin Isfahani, Khadija Begam, Mir 'Abdul-Qadir Musawi Shirazi, Haji Muhammad Shakib and Shahr Banu Begam.

A damaged loose tablet found at Golconda contains a record in Persian and Telugu, according to which a well was excavated and donated for public use in the Golconda *sima* in the name of the Twelve Imams by Shah 'Ali Shah, son of Shah Wali; its date is lost.

49. INSCRIPTION OF THE TUGHLUQS, DISTRICT NIZAMABAD.—One more piece of the published fragmentary inscription of Muhammad bin Tughluq *(Epigraphia Indo-Moslemica,* 1919-20, p. 17, pl. XVI b) was found at Bodhan.

50. MISCELLANEOUS INSCRIPTIONS, ZAFARGARH, DISTRICT WARANGAL.—Inscriptions on three guns at Zafargarh, District Warangal, reveal that they were cast by Muhammad Qasim in A.H. 1188 (A.D. 1774-75) and A.H. 1193 (A.D. 1779).

BIHAR

51. INSCRIPTION OF THE MUGHALS, DISTRICT SANTAL PARGANAS.—A Persian inscription

[1] Dr Z. A. Desai, Superintending Epigraphist for Arabic and Persian Inscriptions of the Survey, stationed at Nagpur, assisted by Dr A. A. Kadiri, Senior Epigraphical Assistant, Shri M. F. Khan, Shri S. S. Husain and Dr M. Y. Quddusi, Epigraphical Assistants, found, copied, examined and reported on four hundred and sixiy-three inscriptions during the year. 1'he important ones are noticed here. Information about 59 is from the Western Circle, Vadodara.

composed by Hafiz Ja'far from Rajmahal, records the construction of a mosque by Shaikh 'Abdullah in A.H. 1103 (A.D. 1691-92) given both in figure and chronogram, during the reign of emperor Aurangzeb Alamgir (cf. *Corpus of Arabic & Persian Inscriptions of Bihar,* Patna, 1973, p. 304).

52. MISCELLANEOUS INSCRIPTION, DISTRICT SANTAL PARGANAS.—An epigraph from the same place records the martyrdom of Masnad-i-'Ali Ibrahim Khan Ghazi, son of Amin Khan Sur (?), described as a man of great virtue, who died on the third Shawwal A.H. 964 (30 July, A.D. 1557) in the prime of youth while fighting the rebellious infidels *(ibid,* p. 149).

DELHI

53. INSCRIPTION OF THE LODIS, NEW DELHI.—A published inscription from Mahrauli *(Epigraphia Indo-Moslemica,* 1919-20, p. 4, pl. Ilia and elsewhere) was found to record the name Daulat Khatun (a lady) and not Daulat Khan, as the builder of a tomb in A.H. 912 (A.D. 1506) in the reign of Sikandar Lodi.

54. MISCELLANEOUS INSCRIPTIONS, NEW DELHI.—An inscription reported to be set up on the grave of Hadrat Taqiud-Din Nuh, outside the Dargah enclosure of Hadrat Nizamud-Din, towards north-east, has been found to be an epitaph of (Khwaja) Mubashshir, the famous and favourite attendant of the celebrated saint; Mubashshir is stated therein to have died in A.H. 737 (A.D. 1336-37), a piece of information not recorded elsewhere (pl. LXV A).

GUJARAT

55. MISCELLANEOUS INSCRIPTIONS, AHMADABAD, DISTRICT AHMADABAD.—An inscription, which appears to have been set up in recent times, contains the text of a long poem in mystic strain in Urdu stated to have been composed in A.H. 1109 (A.D. 1697-98) or so by a saint Babo 'Abdus-Samad on whose mausoleum at Ahmadabad it occurs. An inscription from Ahmadabad assigns the construction of a mosque in A.H. 1133 (A.D. 1720-21) to Salabat Khan.

56. MISCELLANEOUS INSCRIPTIONS, PALANPUR, DISTRICT BANAS KANTHA.—The untraceable epigraph from Palanpur recording the construction of an 'Idgah by Mujahid Khan in A.H. 1060 (A.D. 1650) was found in the office of a local Housing Society. Another inscription from the same place records the laying out of a garden by the Chief Kamal Khan in A.H. 1105 (A.D. 1693-94). A third record from the same town assigns the construction of a gateway called Din-Darwaza to the same Kamal Khan in v.s. 1750 (A.D. 1693). The text, in local dialect, is inscribed both in Arabic and Nagari characters. These epigraphs were published in 1914 in the Urdu work *Tarikh-i-Palanpur by* Gulab Miyan (Delhi, 1914).

57.. EPITAPHS, CAMBAY, DISTRICT KAIRA.—A few more unnoticed epitaphs of the fourteenth and fifteenth centuries, unfortunately badly damaged, were found: one of them records the death of 'Ali, son of Ibrahim, son of Almas al-Bakkari, the year of death being lost. According to another, Khwaja Kamalud-Din, son of Khwaja Ibrahim, died in A.H. 841 (A.D. 1437). That one Mirza Amin Baig was killed in the battle fought with Raghu in A.H. 1189 (A.D. 1775) is given in an epitaph, also found at Cambay.

58. MISCELLANEOUS INSCRIPTIONS, PATAN, DISTRICT MAHESANA.—TWO new epitaphs, of Haji 'Isa, son of Malik Mir and Bayazid, son of Haji, who died in A.H. 844 (A.D. 1440) and A.H. 862 (A.D. 1457-58) respectively were found. According to the couple of inscriptions from this

place, the tomb of Jang Khan Khokhar who died in A.H. 1177 (A.D. 1763) was built by his son 'Inayat Khan.

59. EPITAPHS, CHAMPANER, DISTRICT PANCH MAHALS.—Two epitaphs were recovered from the ruins at Champaner, of which one records the martyrdom of Fakhrud-Din, son of 'Ali, son of Ibrahim, in A.H. 895 (A.D. 1490). The other one is dated A.H. 990 (A.D. 1582) but the name of the deceased mentioned therein is not clear.

MADHYA PRADESH

60. INSCRIPTION OF THE MUGHALS, DISTRICT GWALIOR.—One more fragmentary inscrip tion of Humayun refers to the construction of a mosque.

MAHARASHTRA

61. EPITAPH, MALKAPUR, DISTRICT AKOLA.—It records the death of Sayyida Zainab, daughter of Mirza Abu Talib-al Husaini in A.H. 932 (A.D. 1525) or A.H. 992 (A.D. 1584).

62. INSCRIPTION OF THE 'ADIL SHAHIS, BOMBAY.—An inscription from Dabhol, District Ratnagiri, now preserved in the Prince of Wales Museum, Bombay, recording the order issued in A.H. 1062 (A.D. 1651-52), abolishing the practice of confiscation by the state of the property of a private individual who died without an heir *(Epigraphia Indo-Moslemica,* 1933-34, p. 10, p. 10, pl. V a) was re-examined. It is found that the great noble Malik Shaikh 'Ali, who was instrumental for the issue of the order, is designated as the deputy of Afdal Khan, the celebrated 'Adil Shahi minister governing Dabhol.

63. INSCRIPTION OF NIZAM SHAHIS, DISTRICT NAGPUR.—A new bilingual inscription acquired by the Central Museum, Nagpur, is found to have been set up in the time of Burhan Nizam Shah of Ahmadnagar in A.H. 1000 (A.D. 1592). Being damaged its details are not clear but very probably it is a direction-stone.

64. EPITAPH, NAGPUR, DISTRICT NAGPUR.—According to an epitaph found at Nagpur in the European cemetery, Muizzud-Daula Itisamul-Mulk George Forestor Tahawwur Jang, a vetern official *(sardar),* who had come here as the Representative (of the East India Company) from Calcutta died in A.H. 1204, corresponding A.D. 1791, at the age of 39.

RAJASTHAN

65. INSCRIPTION OF AKBAR'S TIME, AMBER, DISTRICT JAIPUR.—An inscription dated A.H. 1008 (A.D. 1599-1600) in the reign of Akbar, the tablet of which is lying in the office of the Curator of the Amber Fort, records the construction of that magnificent palace by Maharaja Raja Mansingh, son of Raja Bhagwan Das, son of Raja Bharmal, son of Raja Prithviraj Kachchwaha in the course of twenty years.

66. MISCELLANEOUS INSCRIPTIONS, AMBER, DISTRICT JAIPUR.—An inscription now preserved in the Amber Museum records the construction of an edifice—a store of water (evidently a step-well)—in A.H. 1075 (A.D. 1665).

67. INSCRIPTION OF AURANGZEB, POKARAN, DISTRICT JAISALMER.—It records the construc tion of a bastion of the fort in A.H. 1092 (A.D. 1680-81) when Imam Quli, the Qala'dar governed there.

68. VISITORS' RECORD, JAISALMER, DISTRICT JAISALMER.—A visit to Jaisalmer in A.H. 1081 (A.D. 1670-71) in the reign of Rawal Amar Singh, by Mirza Fathi, son of Mirza Isa Tarkhan (of Sind) and his servant Mirza Muhammad, son of Qadi Mahmud, inhabitant of Nasirpur, is indicated by two more visitors' record found there (Cf. *Annual Report on Indian Epigraphy,* 1961-62 nos. 216-218 of Appendix D).

69. INSCRIPTIONS OF AURANGZEB, KHATU, DISTRICT NAGAUR.—Two inscriptions record the construction of mosques in A.H. 1083 (A.D. 1672-73) and were inscribed by Najmud-Din, son of Qadi Abdur-Rahim, a resident of *the pargana* Khattu.

70. INSCRIPTION OF SHAH JAHAN, MAKRANA, DISTRICT NAGAUR.—It records the construc tion of mosque in A.H. 1053 (A.D. 1643-44).

71. INSCRIPTION OF MUHAMMAD SHAH, MAKRANA, DISTRICT NAGAUR.—The inscription states that a mosque was built by Hasan and Nur Muhammad, sons of Sher Muhammad in the fifteenth regnal year (A.D. 1733-34).

72. INSCRIPTION OF AURANGZEB, NAGAUR, DISTRICT NAGAUR.—According to this inscrip tion a mosque was built in A.H. 1099 (A.D. 1687-88).

73. EPITAPH, NAGAUR, DISTRICT NAGAUR.—It states that Isfahsalar Asadud-Din, son of Isfahsalar Ikhtiyarud-Din Buddhu (?) and grandson of Ja'far Afghan of Bhakkar, the governor *(wali)* of the town *(qasba)* of Sodhit (?) obtained martyrdom in A.H. 798 (A.D. 1396).

74. INSCRIPTIONS OF AURANGZEB, SOJAT, DISTRICT PALI.—TWO inscriptions of the emperor assign the construction of a mosque and a cistern with fountain in A.H. 1092 (A.D. 1680-81) to Sardar (Khan ?).

75. INSCRIPTION, SOJAT, DISTRICT PALI.—The inscription, which could not be copied as the latter are filled with lead, records the excavation of a tank and a well in the fort by Lashkar Khan in A.H. 1101 (A.D. 1689-90).

UTTAR PRADESH

76. MISCELLANEOUS INSCRIPTIONS, AGRA, DISTRICT AGRA.—Three more inscriptions in excellent Thulth penned by 'Abdul-Haq entitled Amanat Khan of Shiraz, the famous calligrapher of the inscriptions on the Taj-mahal, were copied from a mosque in Agra city. These were inscribed in A.H. 1045 (A.D. 1635-36) and A.H. 1046 (A.D. 1136-37). These were noticed in Sa'id Ahmad Marehravi, *Muraqqa.-i-Akbarabad* (Agra, 1931, p. 120), where the second date was read as A.H. 1026 (A.D. 1617).

In another published epigraph from the same place, recording the setting up of the foot-print of Prophet Muhammad by Khidmat Khan *(Proceedings of the Asiatic Society of Bengal,* 1874, p. 162), the date was found to be A.H. 1044 (A.D. 1634-35).

An epitaph from Agra records the death of Mughal Baig Khan in A.H. 1213 (A.D. 1798-99). It also names Mu'azzam as the composer of the record.

77. FOUNDATION INSCRIPTION, BIJNOR, DISTRICT BIJNOR.—The inscription states that the mosque founded by Najib Khan Bahadur was completed under the supervision of Ghairat Khan under the former's orders in A.H. 1181 (A.D. 1767-68).

78. FOUNDATION INSCRIPTION, CHANDPUR, DISTRICT BIJNOR.—It records the construction of a mosque in A.H. 968 (A.D. 1560-61) by Haji Muhammad Shah.

79. METRICAL INSCRIPTION, JAHANABAD, DISTRICT BIJNOR.—A metrical inscription composed by Wasli furnishes the date of completion of the tomb of Nawwab Sayyid (name not given) in A.H. 1057 (A.D. 1647).

80. INSCRIPTION OF SHAH ALAM II'S TIME, JALESAR, DISTRICT ETAH.—-The record places the death of Mirza 'Ashur Baig, son of Mirza 'Aziz Baig Ghaznavi, a native of village Khudadad, in A.H. 1198 (A.D. 1784).

81. MISCELLANEOUS INSCRIPTIONS, JALESAR, DISTRICT ETAH.—According to a weather-beaten inscription found here, the tomb of Miran Sayyid Ibrahim, a saint, was built in A.H.954 (A.D. 1555) during the governorship of Masnad-i-'Ali Rustam Khan, at the instance of Miyan Yahya by *Shiqdar* of the *pargana* of Jalesar whose name is illegible except the cognomen Rustam Khani.

82. EPITAPHS OF IRANIAN VISITORS, JALESAR, DISTRICT ETAH.—A few epitaphs of Iranian visitors or newcomers who died within a few years of one another in the last decade of the twelfth century A.H. (A.D. 1778-82) were found here. These refer to Iwad Baig Khan Quhjani Karbala'i, resident of Diwan Tappe, Mahdi Baig Khan, Muhammad Husain Baig, resident of Shiraz, and Rida Quli Khan, a resident of Mashhad, of Karamali clan.

83. FOUNDATION INSCRIPTION, KASGANJ, DISTRICT EATAH.—According to this inscription, the Jami mosque of the town designated as Yaqutganj was built in A.H. 1150 (A.D. 1737-38) by Yaqut Khan, who also built another mosque in the Sarai of the town *(qasba)* of Yaqutganj four years later and endowed three *bighas* of land for its upkeep, according to another record from the same place.

84. INSCRIPTION OF AURANGZEB, JAURASI, DISTRICT SAHARANPUR.—It records the completion of a mosque under the supervision of 'Inayat, an official, in A.H. 1086 (A.D. 1675).

85. FOUNDATION INSCRIPTION, PIRAN KALIAR, DISTRICT SAHARANPUR.—According to this record the tomb of Rai Sher Khan, son of Ahmad, was constructed under the supervision of Bashir and mastership of Bhajju carpenter *(durudgar),* a native of Chittora-Sadat, in AH 1011 (A.D. 1603).

WEST BENGAL

86. INSCRIPTION OF 'ALAUD-DIN HUSAIN SHAH, SAKULIPUR, DISTRICT BIRBHUM. ___ It records the construction of a reservoir in A.H. 916 (A.D. 1510-11) by the king.

87. FRAGMENTARY INSCRIPTION OF HUSAIN SHAH, RAIKHA, DISTRICT BURDWAN. ___ It is somewhat unique in that its calligraphy is, unlike ornamental Tughra of Bengal epigraphs, just plain Naskh. The inscription belongs to the group of few epigraphs of this king mentioning his conquest of Kamrup and Kamta.

88. THREE INSCRIPTIONS OF HUSAIN SHAH, SUATA, DISTRICT BURDWAN.—These are unique among Bengal records in that they contain the name of the scribes. Two of these, inscribed by Qadi Minazi (?) seem to invoke prayers for the long life of the king (a unique feature again)

and seem to be dated A.H. 902 (A.D. 1496-97). The third records the construction of a mosque in A.H. 908 (A.D. 1502-03), the name of the scribe being Nasrud-Din (pl. LXV B).

89. INSCRIPTION OF AURANGZEB'S TIME, INDIAN MUSEUM, CALCUTTA.—It is so far believed to have been a record of Nasirud-Din Mahmud Shah II {*Epigraphia Indo-Moslemica,* 1933-34, p. 2, pl. la) but on re-examination it is found to be a record dated A.H. 1085 (A.D. 1674-75) in the reign of Aurangzeb.

90. INSCRIPTION OF HUSAIN SHAH, GARH MANDARAN, DISTRICT HOOGHLY.—The published inscription was found on re-examination to furnish information that the gate was constructed in A.H. 904 (A.D. 1499) and not in A.H. 900 (A.D. 1494-95) and that the builder was *Shahzada* (prince) Mubarak.

91. INSCRIPTION OF SHAH JAHAN, HIJILI, DISTRICT MIDNAPORE.—It records the construction of a mosque by Taj Khan in A.H. 1055 (A.D. 1645-46).

92. BILINGUAL INSCRIPTION, HIJILI, DISTRICT MIDNAPORE.—The inscription assigns the construction of a mosque to Ikhtiyar Khan, son of Munawwar Khan, in A.H. 943 (A.D. 1536-37).

93. INSCRIPTION of NASIRUD-DIN MAHMUD SHAH I, JANGIPUR, DISTRICT MURSHIDABAD.—The inscription of this Bengal Sultan records the construction of a mosque in A.H. 847 (A.D. 1444) by Ulugh Sarfaraz Khan, the Jamdar-i-Ghair-i-Mahalli; it also designates the latter as *Wazir* in the Diwan (i.e. office) of the East (Cf. *Inscriptions of Bengal,* IV, Rajshahi 1960, pp. 50-51).

94. MUGHAL INSCRIPTION, MURSHIDABAD, DISTRICT MURSHIDABAD.—The inscription of Muhammad Shah records the construction of a mosque in A.H. 1158 (A.D. 1745-46) by Muhammad Bandhu.

95. MISCELLANEOUS INSCRIPTIONS, MURSHIDABAD, DISTRICT MURSHIDABAD.—One of the inscriptions records the construction of a mosque near the tomb of Muhammad Zaman Baig in A.H. 1131 (A.D. 1718-19). Another inscription records the death of Nawwab Shujaud-Daula in A.H. 1151 (A.D. 1739). Yet another inscription records the construction of a mosque by Mahabat Jang in A.H. 1156 (A.D. 1743-44).

HI. NUMISMATICS AND TREASURE TROVE[1]

ANDHRA PRADESH

1. MUGHAL COINS, DISTRICT ADILABAD.—Fourteen silver issues of Mughal period were acquired as treasure trove.

2. VIJAYANAGARA COINS, DISTRICT CHITTOOR.—One hundred and sixty-two copper coins of Vijayanagara rulers were obtained as treasure trove finds.

3. GOLD ORNAMENTS AND COPPER CONTAINER, DISTRICT KHAMMAM.—Thirteen gold ornaments and a copper container were found as treasure trove.

4. PADMATANKAS AND MUGHAL COINS, DISTRICT MAHBUBNAGAR.—Six *padmatankas* and twenty-three silver issues of Mughal rulers were received as treasure trove finds.

5. MUGHAL COINS AND MISCELLANEOUS FINDS, DISTRICT MEDAK.—Fifteen silver coins of the Mughals and forty-six gold, twelve silver and two copper ornaments besides two hundred and twenty-one stone beads were collected as treasure trove finds.

6. ROMAN COIN, DISTRICT WARANGAL.—One Roman gold coin of Emperor Faustina (A.D. 113-161) was found as treasure trove.

7. VIJAYANAGARA COINS, DISTRICT WEST GODAVARI.—Twelve gold issues of Vijayanagara rulers were acquired under the Treasure-trove Act.

. GUJARAT

8. MUGHAL COINS, KANKARIA, DISTRICT AHMADABAD.—A hoard comprising one hundred twenty silver coins was found during excavation of an underground tank at Kankaria. Of these, eight belong to Shah Jahan while the rest are the issues of Aurangzeb ranging in dates from A.H. 1070 to 1117 (A.D. 1659-1706) and were minted variously at Ahmadabad, Ajmer, Akbarabad (Agra), Akbarnagar, Bareli (Bareilly), Bijapur, Burhanpur, Golkonda, Itawa (Etawa), Jahangirnagar, Junagarah, Kambayat (Cambay), Lahur (Lahore), Lakhnau (Lucknow), Machinlipatnam, Shahjahanabad (Delhi) and Surat.

9. BRONZES, MULILA, DISTRICT JAMNAGAR.—Bronze images of Bhairava and a Jaina deity of an uncertain period were found at village Mulila.

10. GADHAIYA COINS, DUNDA KHANPUR, DISTRICT RAJKOT.—Fifteen Gadhaiya coins were acquired as treasure trove finds.

[1] Information from : 1-7, the Director of Archaeology and Museums, Government of Andhra Pradesh; 8-11, the Director of Archaeology, Government of Gujarat; 12, Prof. K. D. Bajpai, Sagar; 13, Prof. A. M. Shastri, Nagpur University; 14-16, the Director of Archaeology, Government of Punjab; 17,' Shri Deveiidra Handa of the B. T. T. College, Sardarshahar; 18-20, the Director of Archaeology and Museums, Government of Rajasthan; 21, 23, Superintending Archaeologist of the Northern Circle of the Survey; 22, 24-29 the Director of the State Museum, Lucknow; and 30, Shri Krishna Kumar of the Survey.

11. MEDIEVAL COINS, KOLI, DISTRICT SURAT.—Ninety-five silver and six copper coins of about the twelfth century were obtained as treasure trove finds.

MADHYA PRADESH

12. EARLY COIN AND SEALINGS, VIDISHA, DISTRICT VIDISHA.—A square copper coin with legend 'Rano Satakarni....', prepared in the same manner as the punch-marked coins, was noticed by Prof. K. D. Bajpai. He also found two terracotta sealings with inscription datable to about A.D. 200 reading *Maharaja Mahasenapati Sena* and *Sri Visalakupa Saulkikanam.* Accord ing to Prof. Bajpai, the latter sealing belonged to *Saulkikas* or Custom officials.

MAHARASHTRA

13. COINS OF SATYABHADRA, BHANDARA, DISTRICT BHANDARA.—Two copper coins, acquired from a local smith, were identified by Dr A. M. Shastri of Nagpur University as the issues of an unknown king named Satyabhadra *of circa* first century B.C.

PUNJAB

14. ANCIENT COINS, AJARAM, DISTRICT HOSHIARPUR.—Coins of Indo-Greeks, Kushan rulers and an issue of Gondopherus were discovered at Ajaram.

15. SEAL AND COINS, SANGHOL, DISTRICT LUDHIANA.—A lead seal, bearing a Kharoshthi inscription referring to Takasila and a large number of Huna coins, some of them being rare types, were collected. Of the latter, two bear the names of Chandragupta and Bhimasena in Brahmi.

16. AUDUMBARA COINS, GHURAM, DISTRICT PATIALA.—A few Audumbara coins bearing a standing figure with a legend Visvamitra in Kharoshthi on the obverse and an elephant and Brahmi legend on the reverse were found at Ghuram.

RAJASTHAN

17. EARLY COINS, DISTRICT GANGANAGAR.—Two circular copper coins, one from a mound, 4 km east of Nohar, and the other from Dhansia, datable to *circa* first century B.C. with legend *Arjunqyanana...'* in Brahmi characters and a tree-in-railing on the obverse and a lion on the reverse were discovered. A rectangular copper coins with a deer-in-shrubs on the obverse and a *vata-tree* on the reverse; a copper coin of Samantadeva type; and a small circular copper coin having an eighteen-spoked wheel on the obverse and an animal in incused on the reverse were obtained from Pandusar. From Birkali, about 10 km south-west of Nohar, came a small copper coin bearing on the obverse an animal figure and a crude human figure with upraised hands on the reverse.

18. MISCELLANEOUS COINS, DISTRICT JAIPUR.—Discoveries of eight silver issues of Khaljis and eight hundred and eighty of Tughlaqs from Amber, eight bull and horseman type, an *Adivaraha* and a Mughal coin from Galar and two hundred and eighty-five coins of bull and horseman type from Karipura were reported under Treasure-trove Act.

19. MEDIEVAL COINS, DISTRICT SIKAR.—Eighty-one *Adivaraha* and sixty-eight bull and horseman type coins were obtained from Ganedi besides seven hundred and ninety-six issues of Ibrahim Lodi in copper from Katrathal as treasure trove finds.

20. ADIVARAHA COINS, DISTRICT TONK.—A hoard consisting of one hundred *Adivaraha* copper *drammas* was found at Todarai-singh.

UTTAR PRADESH

21. PUNCH-MARKED COINS, KAUSAMBI, DISTRICT ALLAHABAD.—A hoard consisting of nine hundred and seventeen copper punch-marked coins was recovered from the vicinity of Kausambi.

22. MISCELLANEOUS COINS, DISTRICT ALMORA.—A hoard of one thousand two hundred and thirty-four copper coins of local rulers was found at Falyat near Sameshwar and another comprising nine silver coins of Mughals at Vaman Sivala-Potgalya.

23. COPPER COINS, DWARAHAT, DISTRICT ALMORA.—Three circular copper coins, one of which bearing the name of Muhammad Shah, were recovered during clearance operations at Manian-Deo and Badrinath temples at Dwarahat.

24. MUGHAL COINS, ALINAGAR, DISTRICT BASTI.—Fifteen silver issues of Mughals were reported under Treasure-trove Act.

25. MUGHAL AND BRITISH COINS, DISTRICT BIJNORE.—Two hoards of fourteen and eighty silver coins pertaining to Mughal and British rulers respectively from Bodhapur and Pandrikalan were received by the State Museum, Lucknow.

26. BRITISH COINS, KAGPURA, DISTRICT FAIZABAD.—A hoard comprising eighty silver coins of East India Company series was received by the State Museum, Lucknow.

27. MISCELLANEOUS COINS, DISTRICT LUCKNOW.—The State Museum also acquired four hundred seventy-five silver and twelve hundred thirty-four copper coins belonging to the Mughals, East India Company and other local dynasties as treasure trove finds.

28. BRITISH COINS, DISTRICT SITAPUR.—A hoard containing eighty-three silver coins of East India Company were obtained.

29. KUSHAN ORNAMENTS AND COINS, MUNI-KI-RETI, DISTRICT TEHRI-GARHWAL.—A hoard, containing five pieces of ornaments including two pairs of earrings and a chain in gold and a wire-like object and forty-five gold coins of Huvishka and Vasudeva, was found at Sivanand Asrama.

30. TERRACOTTA SEALINGS, SARNATH, DISTRICT VARANASI.—Shri K. Kumar found three terracotta sealings at Sarnath. Of them, two bear the Buddhist creed in five lines in Nagari characters of about the twelfth century, and the third one has a damaged inscription of which only expression *Sri Saddharma chakre* could be deciphered.

IV. OTHER IMPORTANT DISCOVERIES

ANDHRA PRADESH

1. ANCIENT BUDDHIST SITE AND SCULPTURES, PENUKANCHIPROLU, DISTRICT CUDDAPAH.—An ancient Buddhist *stupa-site* and limestone sculptures of Buddha, stylistically ascribable to the second-third century A.D., were discovered by Shri D. Hanumantha Rao of the Survey. He also noticed a medieval temple dedicated to Vishnu and several mutilated sculptures and a fragmentary Telugu inscription of Kakatiya period.

2. MEDIEVAL TEMPLES AND SCULPTURES, VELLALA, DISTRICT CUDDAPAH.—Shri D. Hanumantha Rao of the Survey noticed early medieval temples dedicated to Siva and Narasimha, besides a few loose sculptures of Ganesa, Nagi and hero-stone at Vellala on the bank of the river Kundu. The Siva temple is of *trikuta* type and enshrines a *linga,* Parvati and Virabhadra figures.

3. SCULPTURES, BHEEMGAL, DISTRICT NIZAMABAD.—In the course of debris clearance in the *Nandi-mandapa* by the Survey, a few sculptures including an image of Vighnesvara, two *naga-kals* and a ceremonial trident were found.

BIHAR

4. PALA BRONZES, JAIPURGARH, DISTRICT GAYA.—Shri Naseem Akhtar of the Gaya Museum and Shri A. K. Sinha of the Department of Archaeology, Government of Bihar, discovered twelve bronze images, including figures of Tara, Hariti, Bodhisattva Lokesvara, Maitreya, Vishnu, Ganesa and a replica of the Mahabodhi temple of Bodh-Gaya.

GUJARAT

5. LOWER PALAEOLITHIC SITE, BACHA, DISTRICT JUNAGADH.—Shri Shankar Nath of the Western Circle of the Survey discovered a Lower Palaeolithic site yielding rolled tools embedded in the hill-wash deposited by monsoonal nullah flowing from the foothills of Gimar. The tools include cleaver and handaxes on flakes.

6. LOWER PALAEOLITHIC SITE, BALANI-VAV, DISTRICT JUNAGADH.—Shri Shankar Nath of the Western Circle of the Survey located a Lower Palaeolithic site at Balani-vav, near Jaffarabad Creek. The highly rolled tools with yellow-creamy patination seem to be washed out material from an aggraded silt-deposit formed due to rise in sea-level as a result of eustatic activity on the shore-line. The tools include pebble-scraper, point on flake, cleaver on flake, and highly rolled handaxe.

7. VISHNU IMAGE, KEVADRA, DISTRICT JUNAGADH.—The Department of Archaeology and Ancient History of the M. S. University of Baroda, discovered a stone image of Vishnu, belonging to about the thirteenth century A.D.

8. JINA IMAGE, SURAT, DISTRICT SURAT.—A Jina image of marble datable to *circa* thirteenth century A.D. was found at Surat.

9. GURJARA COPPER-PLATE, DHANPURA, DISTRIGT VADODARA.—The Department of Archaeology and Ancient History of the M. S. University of Baroda, brought to light a set of copper-plates of Dadda Prasanta Raga, recording the donation of fifteen large *prastha* of land in Kanapalli in Vijayapura-vishaya.

10. INSCRIBED TERRACOTTA TABLET, VADODARA, DISTRICT VADODARA.—A unique votive tablet (10 x 7 cm) with an inscription, reading 'Makka-Madina' in Thulth characters of the fifteenth century A.D., was found in the course of new construction in Shiyabag locality of Vadodara city by the Superintending Archaeologist of the Western Circle of the Survey.

HARYANA

11. HARAPPAN SITES, DISTRICT AMBALA.—Shri Lalman of the Punjab University, Chandigarh, collected Harappan pottery from Mansadevi and Surajpur.

JAMMU AND KASHMIR

12. ANCIENT SCULPTURES, NARANG WANGAT, DISTRICT SRINAGAR.—During the course of clearance work by the Survey, partially-damaged sculptures of *chaturmukha* Vishnu with personified forms of *chakra-purmha* and *gada-devi* and a Karttikeya image were unearthed.

KARNATAKA

13. EARLY HISTORICAL SITE, KAKTI, DISTRICT BELGAUM.—Drs B. S. Kulkarni and A. Sundara of the Karnataka University, Dharwar, discovered an ancient site yielding stone saddle-querns and early historical pottery, besides *garbha-griha* of Virabhadra temple of *circa* twelfth-thirteenth century A.D. at Kakti. A *Siva-linga* of about the eleventh century and a few sculptures, depicting Ganesa, Mahishasuramardini and Nandi were also found in the village.

KERALA

14. LATE MEDIEVAL SCULPTURES, ARPOOKANA, DISTRICT KOTTAYAM.—The Director of Archaeology of the State noticed sculptures of Nagaraja and Naga-yakshi in granite, datable to *circa* sixteenth-seventeenth century A.D. at Arpookana.

15. MEDIEVAL SCULPTURE, RAMANATTUKARA, DISTRICT KOZHIKODE.—An image of Bala-Subrahmanya (ht. 10 cm) of about the eleventh-twelfth century A.D. was found at Ramanattukara by the Director of Archaeology of the State.

16. MEDIEVAL SCULPTURE, TRIKOTITHANAM, DISTRICT KOZHIKODE.—A four-armed image of Dakshinamurtti in black granite, datable to *circa* tenth-eleventh century A.D. was discovered by the Director of Archaeology of the State.

MADHYA PRADESH

17. MEDIEVAL SCULPTURES AND OTHER OBJECTS, MANDU, DISTRICT DHAR. ___ Shri S. K. Goswami of the Survey discovered a miniature sculpture of headless *Tirthankara* and a bust of a male figure in *anjali-mudra,* datable to eleventh century A.D., at Mandu. He also found an iron knife, a pair of scissors, stone beads, a stone seal and glazed ware of medieval period at Mandu.

18. STONE AGE TOOLS, BESRA, DISTRICT GUNA.—Sarvashri C. B. Trivedi and T. V. G. Sastri of the Survey discovered prehistoric tools at a distance of 8 km from Thoban village on the right bank of the river Orr. The high terrace at the top yielded flake tools comprising end-scrapers and hollow-scrapers of Levalloisian tradition. Microlithic tools were also collected from the village.

19. MEDIEVAL TEMPLES, BESRA AND MARHI CHANDERI, DISTRICT GUNA.—Sarvashri C. B. Trivedi and T. V. G. Sastri of the Survey discovered a ruined temple at Besra and Vishnu temple at Marhi-Chanderi, both datable to *circa* tenth-eleventh century A.D.

20. PAINTED ROCK-SHELTERS, NANOD, DISTRICT GUNA.—Sarvashri C. B. Trivedi and T. V. G. Sastri of the Survey noticed a number of rock-shelters painted with hunting scenes and figures of pigs, antelopes, humped bull, etc.

21. PAINTED ROCK-SHELTERS, THOBAN, DISTRICT GUNA.—Sarvashri C. B. Trivedi and T. V. G. Sastri of the Survey discovered a number of rock-shelters painted with animals in usual line drawings. Among the animals painted, antelope, bulls, elephants are worth-mentioning.

22. JAINA CAVE AND SCULPTURES, BIHAR-KOTARA, DISTRICT NARSINGARH.—Shri B. L. Nagarch of the Survey discovered a cave and a few Jaina sculptures at Bihar-Kotara.

23. RUBBLE PLATFORMS, PIRIKARAR, DISTRICT SEHORE.—A number of rubble platforms, mostly circular and a few square, about 2 m in width, were noticed along the left bank of the river Kalladoh (a northern fluent of the Narmada), at Pirikarar by the Prehistory Branch of the Survey.

24. MEDIEVAL TEMPLES, AVALI, DISTRICT WEST NIMAR.—Shri B. L. Nagarch of the Survey noticed remains of five Brahmanical temples belonging to *circa* eleventh century A.D.

PUNJAB

25. ROCK-CUT CAVES, DOONGH, DISTRICT GURDASPUR.—Kumari Ranveer Kaur of the Department of Tourism, Cultural Affairs, Archaeology and Museums, Government of Punjab, discovered some rock-cut caves in the foothills of the Himalayas, situated in a bend of the river Ravi. The facade of the cave has figures of two females on it. On the left side of the cave there is a four-line inscription in the late Gupta Brahmi characters.

RAJASTHAN

26. OCHRE-COLOURED POTTERY SITES, DISTRICT JAIPUR.—During the course of exploration of the principal river valleys in the District, sites yielding Ochre-coloured pottery were noticed at Bondhansingh-ka-tila and Bhankri on the bank of the river Sabi by the Directorate of Archaeology and Museums, Government of Rajasthan.

27. MEDIEVAL SCULPTURES AND PAINTINGS, GANERI, DISTRICT SIKAR.—A standing image of Lakshmi-Narayana and another of Vishnu, datable to *circa* tenth-eleventh century A.D. and twenty-four panels of eighteenth century wall-paintings of Jaipur school were noticed by the Department of Archaeology and Museums, Government of Rajasthan.

UTTAR PRADESH

28. MEDIEVAL REMAINS, JAUTANA, DISTRICT AGRA.—Shri J. S. Nigam of the Survey noticed some architectural and sculptural fragments comprising the figures of Siva, Chamunda, Vaishnavi and Parvati, datable lo *circa* tenth century A.D. at Jautana, about 7 km away from Fatehpur Sikri.

29. ANCIENT SITE, BAYALIS-SERA, DISTRICT ALMORA.—Dr M. P. Joshi of the Government College, Pithoragarh, discovered an ancient mound at Bayalis-Sera in the Katyura valley. The sherds collected showed similarity with the medieval pottery from Ahichchhatra.

30. IMAGE of VISHNU, KATARMAL, DISTRICT ALMORA.—Shri C.B. Misra of the Survey discovered an image of Anantasayi-Vishnu in buff stone in the vicinity of Sun temple at Katarmal. The sculpture can be stylistically dated to *circa* ninth century A.D.

31. YAKSHA IMAGE, AHICHCHHATRA DISTRICT BAREILLY.—A seated Yaksha figure in red sandstone, datable to *circa* third century A.D., was found within the protected area at Ahichchhatra.

32. PAINTED GREY WARE, KHEERA, DISTRICT KANPUR.—Shri L. M. Wahal of the Survey collected sherds of the Painted Grey Ware, Northern Black Polished Ware, fine grey and red wares, during the exploration at Kheera.

33. MEDIEVAL SCULPTURE, SAMBHAL, DISTRICT MORADABAD.—The State Museum, Lucknow, discovered at Sambhal, a sculpture of *Uma-linganamurtti* with Bhringhi in unusual details in light buff stone, measuring 56x58 cm, datable to *circa* tenth century A.D.

34. NORTHERN BLACK POLISHED WARE, KURWAL, DISTRICT SULTANPUR.—Shri L. M. Wahal of the Survey collected Northern Black Polished Ware, black-slipped, red and medieval glazed wares from a mound at Kurwal near Garh.

35. MAHISHASURAMARDINI, SULTANPUR, DISTRICT SULTANPUR.—Shri L. M. Wahal of the Survey discovered an image of Mahishasuramardini at Sultanpur.

WEST BENGAL

36. JAINA SCULPTURE, SAT DEULIA, DISTRICT BURDWAN.—Shri P. C. Dasgupta of the Department of Archaeology, Government of West Bengal, discovered a mutilated but almost life-size stone image of a Jaina *Tirthankara,* probably Risabhanatha, belonging to *circa* tenth century A.D.

37. BRAHMANICAL SCULPTURES, GAZOLE, DISTRICT WEST DINAJPUR.— Dr S. C. Mukherji of the Department of Archaeology, Government of West Bengal, discovered a two-armed seated Tara, four-armed standing Vishnu having unusual attributes and attendants and a four-armed standing Vamana incarnation of Vishnu at Gazole. All the three can be dated on stylistical grounds to *circa* eleventh century A.D.

V. RADIOCARBON DATES[1]

Radiocarbon dates[2] presented here were determined between August 1975 and July 1976, at the Physical Research Laboratory, Ahmadabad. The dates are based on radiocarbon half-value of 5730±40 years. For conversion into B.C./A.D. scale, 1950 is the base year. The sites[3] are arranged Statewise and alphabetically. All the samples were pre-treated with hydrochloric acid. Rootlets were handpicked, wherever present.

ANDHRA PRADESH

1. AMARAVATI, DISTRICT GUNTUR

PRL-157. NBP deposits (?); charcoal; locus: trench YA-1/3, layer 10A; depth 4.20 m. NaOH pretreatment given.	1750±100 (A.D. 200)
PRL-158. NBP deposits; charcoal; locus: trench YA-4/3, layer 12; depth 3.75 m. NaOH pretreatment given.	1930±110 (A.D. 20)
PRL-160. *Stupa-complex,* early phase; charcoal; locus: trench YA-3/2, layer, 11; depth 3.60 m. NaOH pretreatment given.	1960±110 (10 B.C.)
PRL-162. Early level of the *stupa;* charcoal; locus: trench YA-1/2, layer 11; depth 4.10 m. NaOH pretreatment given.	2000±130 (50 B.C)
PRL-165. Historical deposits coeval with early level	1870±140 (A.D. 80)

[1] Contributed by Dr D. P. Agrawal, Shri R. V. Krishnamurthy, Kumari Sheela Kusumgar and Dr R. K. Pant.

[2] For further details of the sample, the submitting organizations may be contacted.

[3] Samples submitted by: 1 and 7, the Archaoabgical Survey of India ; 2 to 4 and 25, the Geological Survey of India; 5, the Department of Archaeology, Government of Haryana; 6 and 8, the Deccan College Post-graduate and Research Institute, Pune; 9, Dr Bridget Allchin, Cambridge, U. K..; 10, the Department of Archaeology and Museums, Government of Rajasthan; II, the Hindustan Zinc Ltd., Dariba; 12 to 21, Dr A. V. N. Sarma, Temple University, U. S. A.; 22 and 23, the Allahabad University, Allahabad; and 24, the Birbal Sahni Institute of Palaeobotany, Lucknow.

of *Maha-stupa:* charcoal; locus: trench YA-3/3, layer 10, depth 4.20 m.

GUJARAT

2. ANDADA, DISTRICT BROACH

PRL-146. River terrace; Lime Caliche; upper terrace on R. Narmada; depth 3.0 m. Comment: Caliche, not being a reliable material, date is expressed in terms of % of modern.	l-95±% of modern

3. KHIMESHWAR, DISTRICT JUNAGADH

PRL-218. Eustatic oscillation; Lamelli branch shells; from oyster bed 1 -5 km north of 75° E of temple of Kunchhidi, 2 m above High water-level underlying 1.0 m thick recent Runn clays.	38470± 12090 (36520 B.C.) —4710

4. ODADOR, DISTRICT JUNAGADH

PRL-217. Marine deposit; Coralline limestone; 3 km south-east of Odador, 3-0 m above High water-level overlain by 4-m thick aeolinite deposit.	45000

HARYANA

5. BANAWALI SOTTAR, DISTRICT HISSAR

PRL-203. Harappan culture; charcoal; locus: trench ZB1, layer 12; depth 1-35 m to 1.60 m; sample no. 4. NaOH pretreatment given.	3910±100 (1960 B.C.)
PRL-205. Harappan culture; charcoal; locus: trench ZB1, layer 14; depth 1.70 m; sample no. 7.	3930±190 (1980 B.C.)

NaOH pretreatment given.
Comment: rootlets removed.

PRL-207. Harappan culture; charred grain; Locus: trench ZC2; layer 6; depth 0-5 to 0-6 N, sample no. 10.	3910±110 (1240 B.C.)

KARNATAKA

6. KOVALLI, DISTRICT BIJAPUR

PRL-247. Gravel deposit; shells; from gravel on R. Ghataprabha deposit, associated with Middle Palaeolithic tools; depth 0-5 m; sample no. KUL-GSHG-1. Comment: sample appears to have been deposited by modern flood waters.	Modern

7. HATTI GOLD MINES, DISTRICT RAICHUR

PRL-253. Ancient gold mining area; charred wood; from ancient shaft partly covered by earth; sample no. 2/75/Msc. NaOH pretreatment given.	2710± 50 (760 B.C.)

MAHARASHTRA

8. KHED, DISTRICT AHMADNAGAR

PRL-220.Jorwe culture; charcoal; locus: trench RHD-1, layer 18; depth 2.25 m; sample 2. NaOH pretreatment given.	2980± 160 (1030 B.C.)
PRL-221.Jorwe culture; charcoal; locus: trench KHD-1, layer 7; depth 1.0 m; sample no. 1. NaOH pretreatment given.	3230±90 (1180 B.C.)

9. DAHANU, DISTRICT THANA

PRL-75. Raised beach; shells from raised beach; 6.0 m above MSL.	3640±120 (1690 B.C.)

RAJASTHAN

10. JODHPURA, DISTRICT JAIPUR

PRL-212. Black-and-red and PGW deposits; charcoal; locus: trench D, layer 9; depth 2.60 m; sample no. 1. NaOH pretreatment given. Comment: rootlets removed.	233O±1OO (380 B.C.)
PRL-213. PGW deposits; charcoal; locus: trench E, layer 7; depth 3.50 m; sample no. 2. NaOH pretreatment given.	227O±11O (320 B.C.)
PRL-272. Early PGW deposits; charcoal; locus: trench D, layer 12; depth 1-97 m; sample no. JRA-3/75. NaOH pretreatment given.	2750±150 (800 B.C)
PRL-273. Earliest phase of PGW; charcoal; locus: trench E, layer 8; depth 2.50 m; sample no. JRA-4/75. NaOH pretreatment given.	2370±150 (420 B.C)
PRL-274. Early phase of PGW; charcoal; locus: trench D, layer 12; depth 2.90 m; sample no. JRA-5/75. NaOH pretreatment given.	2320±110 (370 B.C.)
PRL-277. Late phase of OCP; charcoal; locus: trench D, layer 14; depth 1-94 m; sample no. JRA-9/75. NaOH pretreatment given.	2690± 110 (740 B.C)

11. RAJPURA DARIBA MINES, DISTRICT UDAIPUR

PRL-208. Ancient mining area; wood; east lode old working; depth 4.0 to 5.0 m; sample no. 1. NaOH pretreatment given,	2200±10O (250 B.C.)
PRL-209. Ancient mining area; wood; east lode old working;	1840±130 (A.D. 110)

depth 263 m; sample no. 2. NaOH pretreatment given.	
PRL-210. Ancient mining area; wood; main lode old working; depth 100 m; sample no. 3.	3120±160 (1170 B.C.)

TAMIL NADU

12. ILLANKALANVADI, DISTRICT KANYAKUMARI

PRL-115. Coastal sediment; lagoon shells and backwaters; 6-0 m above HWL.	4320±100 (2370 B.C.)

13. CHINNA NATTATHI, DISTRICT TIRUNELVELI

PRL-118. Coastal sediment; marine shells; from a lagoon; 11-0 m above-HWL.	45000

14. PANDIYA THIVU, DISTRICT TIRUNELVELI

PRL-119. Coastal sediments; coral; Pandiya Tivu (Old Hare's Island); 3-0 m above HWL.	1050±80 (A.D. 900)
PRL-120. Coastal sediment; coral; Pandiya Tivu (Old Hare's Island).	2130±100 (100 B.C.)

15. TUTICORIN NEW HARBOUR, DISTRICT TIRUNELVELI

PRL-121. Coastal sediment; marine shells and limestone; bore hole Z; 11.0 to 6.0 m below HWL.	29180+2675(27330B.C.) -1915
PRL-122. Coastal sediment; limestone with shells; bore hole L; 12-73. below HWL.	
PRL-123. Coastal sediments; calcareous material; bore holes; 11-4 m below HWL.	45,000

16. DUBASH CHETTI, DISTRICT TIRUNELVELI

	33,000+2125 (3150 B.C.) -1740
PRL-124. Coastal sediment; marine sheells; 4 km inland	
	5470±110 (2520 B.C.)

	and 5.6 km north of Tuticorin; 6 m above HWL.	
	PRL-125. Coastal sediment; marine shells; 3 m above HWL.	5710±110 (3760 B.C.)
17.	KAMARAJAPURAM, DISTRICT TIRUNELVELI	
	PRL-126. Coastal sediment; lagoon shells; 4 km inland; 6 m above HWL.	2790±150 (840 B.C.)
18.	StFRANGADU, DISTRICT TIRUNELVELI	
	PRL-127. Coastal sediment; marine shells; 3 m above HWL.	430±150 (1520 B.C.)
19.	KORKAI, DISTRICT TIRUNELVELI	
	PRL-128. Coastal sediment; marine shells; 8 km inland; 6.5 m above HWL.	3820±110 (1870 B.C.)
20.	AYYANIRUPPU, DISTRICT TIRUNELVELI	
	PRL-129. Coastal sediment; shells; 9 km inland; 7 m above HWL.	22690 (20740 B.C.)
21.	PUDUKKOTTAI, DISTRICT TIRUNELVELI	
	PRL-130. Coastal sediments; lagoon shells; from Pudukkottai tank; 16 km inland; 14 m above HWL.	29900 +2415 (27950 B.C.)

UTTAR PRADESH

22.	DEOOHAT, DISTRICT ALLAHABAD	
	PRL-86. Cemented gravel III; shells; cemented gravel III; locality VI, near Deoghat on R. Belan.	25790+830 (23840B.C.) - 760
23.	KOLDIHWA, DISTRICT ALLAHABAD	
	PRL-223. Transition phase from Neolithic to Chalcolithic; charcoal; locus: trench	3390 ±120 (1440 B.C.

KDW-II/21, layer 3 and 4; depth 0-6 to 0-9 m; sample no. Au/ALD/KDW/II (DGT)/75-15. NaOH pretreatment given.

PRL-224. Iron Age deposits; charcoal; locus: trench KDW-II/Z1, layer 1; depth 0.24 to 0.40 m; sample no. Au/ALD/KDW-II (DGT)/75-16. NaOH pretreatment given. Comment: sample derived from basal culture.	8520±210 (6570 B.C.)
PRL-227. Iron Age deposits; charcoal; locus: trench KDW-I/E3, layer E3/KM-VII; depth 0-48 to 0-60 m; sample no. Au/ALD/KDW-I (DGT)/75-20. NaOH pretreatment given.	2110±110 (160 B.c.)

WEST BENGAL

24. ANTISARA, DISTRICT HOOGHLY

PRL-136. Fluvial deposit; wood from a pile of channel-fill; sediment depth 9.10 m.	2970±120 (1020 B.C.)

25. KOLARA, DISTRICT HOWRAH

PRL-236. Terrace material; organic debris; river terrace near Kolara; depth 6.65 m; sample no. 4.	6840±260 (4890 B.C.)
PRL-238. Terrace material; organic debris; river terrace near Kolara; depth 2.60 m; sample no. 6. Comment: samples measured to date evidence of subsidence of forest in Bengal Besin.	1710±110 (A.D. 240)

VI. PALAEOBOTANICAL AND POLLEN ANALYTICAL INVESTIGATIONS[1]

Charcoal and food-grains from various sites were investigated. The identifications of rice remains of wild and cultivated species are based on the authentic modern species of wild and cultivated varieties. The result of the investigation is reported below.

BIHAR

1. CHIRAND, DISTRICT SARAN.—Charcoal in samples TF-444, radiocarbon dated to 2590±105 (2665±105), has been identified as of Sal, *Shorea robusta.*

GUJARAT

2. SURKOTADA, DISTRIGT KUTCH.— Continued research on the charred mass recovered from Locus XA-4, Qd. 1, layer 5, depth 1-6 m has enabled the recognition of seeds of *Setaria viridis,* finger millet or Green millet. The finger millet is a wild species and believed to be progenitor of the Italian millet, *S. italica.*

3. ROJDI, DISTRICT RAJKOT.—Charcoal in TF-196 has been identified as belonging to *Atbizzia lebbeck.* This tree occurs frequently mainly in and around villages.

JAMMU AND KASHMIR

4. BURZAHOM, DISTRICT SRINAGAR.—Charcoals identified together with their TF number are given below:

(a) TF-124, Salix sp. (DGA: 6310; site: BZH-3'61; locus: A-1 and A-2; stratum: D, pit-C; Neolithic phase I; depth: 13'7" B.S.)

(b) TF-125, *Cedms deodara* (site: BZH-3'61; locus: B-2 (NE), dwelling pit-C; stratum: D, pit-C; depth: 8'-9'3" B.S.).

(c) TF-126, *Pinus* sp. (site BZH-3'61; locus: A-13 (NE, NW); stratum: 9, phase II, floor with post-holes; depth: 8'6" B.S.).

The plant species identified still occur in the Kashmir Valley.

KARNATAKA

5. TEKKALAKOTA, DISTRICT BELLARY.—Most of the charcoals from this site such as TF-237, 238, 279 and 280 from locus: TKT-1; Tr. 1, L: 10', L:(4) at a depth of 42", 31', 25" and 40" respectively, TF-262 from locus: 1, Tr. 9, L: 168, B-3'7", L: (1), and TF-273, 276 from locus: II, Tr. 2, L: 8'5", B-15'3", L: (2), at a depth of 3' and 2' respectively, belong to *Soymida Jebrifuga.*

6. HALLUR, DISTRICT DHARWAR.—Identification of charcoal together with their TF number is given below.

TF-571, *Polyalthia* sp.

TF-572, *Polyalthia* sp., *Anogeissus* sp.

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[1] Contributed by Dr Vishnu-Mittre and Kumari R. Savithri of the Birbal Sahani Institute of Palaeobotany, Lucknovv.

TF-573, *Polyalthia* sp. (overlap phase-2820±100; 870 B.C. Tr. 1, L: 5, D: 2-5 to 3.5 m, S. no. 4, belongs to Megalithic-Neolithic phase). TF-577, *Albizzia* sp. TF-580, *Polyalthia* sp., *Anogeissus* and *Albizzia* sp. (Tr. 1, L: 14. D: 6-1 to 6-4 m, S. no.l 1). This charcoal is dated by radiocarbon to 3560±i05 (1610 B.C.)—the Early Neolithic Period TF-581, *Holarrhena antidysentrica*

MAHARASHTRA

7. INAMGAON, DISTRICT PUNE.—Charcoals from this site have been identified as *of Dendrocalamas* sp. (bamboo), *Tectona gradis* (teak) and *Albizzia* sp.

PUNJAB

8. RUPAR, DISTRICT RUPNAGAR.—Charcoal no. TF-209 dated 2365±100 (415 B.C., Northern Black Polished Ware level) identified as belonging to *Acacia* sp. and *Albizzia* sp.

RAJASTHAN

9. LAKE BUDHA PUSHICAR, DISTRICT AJMER.—Fluctuations between open ground vegetation and desert savannah during the last 600 radiocarbon years or so have been observed in a 1-20-m profile from this lake. Fairly large-sized cerealia pollen, comparable with that of maize or jobs tears *(Coix lacryma jobi),* the latter believed to have been cultivated in the past in several parts of the country, have also been observed.

10. KALIBANGAN, DISTRICT GANGANAGAR.—Charcoals from the following twenty-nine samples were identified—

Harappan Level:

TF-440, *Calligonum* sp. [KLB-2, D-7, Qd. 3 (10), 2.17 m]
TF-439, *Ficus* sp. (cf. *glomerata* or *religiosa)* [KLB-2, C-7, Qd-3, (6), 1.65 m].
TF-436, *Dalbergia sissoo* [KLB-2, E-2, Qd.4, (1), 1.42 m].
TF-435, *Boswellia srrta* [KLB-2, E-2, Qd. 4 (5), 1-10 m].
TF-434, *Potamogeton* or *Mymphaea* [KLB-2, E-2, Qd. 4, (4), 0-97 m].
TF-433, *Tamarix dioica* [KLB-2, XC-9, Qd. 2, oven/hearth sealed by (6), 1.45 ml.
TF-432, *Moms indica* [KLB-2, XA-15, Qd. 3/c/64-65, (7), 1.45 m].
TF-431, *Salvadora persica* (KLB-2, XB-8, Qd.4, (4) 1-30 m].
TF-430, *Terminalia* sp. (KLB-2, C-5, Qd. 1, (6), 1.80 m].
TF-429, *Dalbergia* sp.
TF-427, *Albizzia lebbeck* [KLB-2, XA-2, Qd. 2, (6S), 1.15 m].
TF-425, *Acacia* sp. [KLB-2, XA-11, Qd. 2, (6), 1.55 m].
TF-423, *Anogeissus latifolia.*
TF-421, *Acacia* sp. (KLB-2, XA-10, Qd. 3, (6), 1.45 m).
TF-420, *Dalbergia sissoo* [KLB-2, A-6, Qd-4/c/64-65, 1(2), 2-5-3.0 m].
TF-152B, *Tectona grandis,* 3615±85 (3720±90).
TF-149, *Dalbergia* sp. (2675±140) [DGA: 6336, KLB-2, ZE-I/c/62-63, —15, Qd.-l, 4(3)].

Pre-Harappan Level:

TF-24f, *Acacia* sp. (4090±90=4205±95) [KLB-1, XD-1, pit 4 sealed by (2), 2.70 m].
TF-163, *Tectona grandis* (3910±100).

TF-156, *Dalbergia* sp. (3740±110=3850±110) [KLB-1, XE-l/c-62-63-5, Qd. 1, (2), 0-80 m]. TF-152A, *Tectona grandis* (3615±85=3720±90) [KLB-2, XB-9/c/62-63-18, Qd. 4, (5) 0-90].

11. AHAR, DISTRICT UDAIPUR.—-Charcoal no. TF-209 dated to 2365±100 (415 E.G., Northern Black Polished Ware level) identified as belonging to *Acacia* sp. and *Albizzia* sp.

UTTAR PRADESH

12. KOLDIHWA, DISTRICT ALLAHABAD.—Rice imprints on potsherds from the Neolithic levels anterior to 6480±185 B.G. (single radiocarbon date for the base of overlying chalcolithic) are now identified.

Koldihwa IV-VII, stratum 10, 1-90 m, *0. Saliva* var. *Sativa 0. Saliva.*
Koldihwa XI, stratum 9, 1-40 m, 0. *rufipogon.* Koldihwa XI, stratum 8, 1 25 m, *0. Sativa* var. *0. Sativa 0. nivara,* Koldihwa YI, stratum 7, 1.10 m, *0. Sativa.*

Thus during the Neolithic stage, the people of Koldihwa had known along with the cultivated rice, a perennial wild *(0. rufipogon)* and an annual wild *(0. nivara)* rice also.

VII. MUSEUMS

1. SITE MUSEUM, AHAR.—Besides improving the display in the museum galleries, additional accommodation for storage was provided to the museum building.

2. RAJPUTANA MUSEUM, AJMER.—The display in the Mahavira Corner of the Museum was made ready.

3. ALLAHABAD MUSEUM, ALLAHABAD.—The Museum acquired three terracottas, datable to second-first century B.C., seven clay sealings, four miniature stone objects, besides a neolith and ten palaeolithic tools. Terracottas include a plaque depicting erotic scene and a figure of a *yaksha.* Some of the sealings are unique examples having the legends *Rajno Parvatasya, [Ma] harajasja Kautsiputrasya Sri Bhadra Ma [ghasya]* and *Maharqjasya Satamitrasya.* These kings of Kausambi, of the second-third century A.D., were known earlier from their coins and inscriptions. Among the miniature stone objects, mention may be made of a figure of Mother Goddess similar to those found on the ring-stone from Patna, Kausambi and other places.

4. GOVERNMENT MUSEUM, ALWAR.—The gallery containing musical instruments, handi crafts and arms was rearranged on scientific lines.

5. ARCHAEOLOGICAL MUSEUM, AMARAVATI.—Walls of the Museum were painted with suitable colours and the galleries were provided with collapsible gate? for better security. Moreover, door and windows were fitted with iron grills. Partition walls and masonry shelves were constructed for arranging the exhibits in the Reserve Collection.

A special exhibition was organized during March 1976 with a view to creating awareness amongst the people for the preservation of India's cultural heritage.

6. GOVERNMENT MUSEUM, AMBER.—Steps were taken for the proper lighting arrangements in the Museum while for safety, iron doors were provided.

7. MUSEUM AND PICTURE GALLERY, BARODA.—In order to make the exhibits more communicative, the antiquities in the Archaeological Section were provided with proper educational charts. The section displaying the famous Akota bronzes was reorganized on modern lines.

The noteworthy specimens acquired during the period comprise two stone sculptures of the medieval period from Samalaji-Roda, one illustrated manuscript of Ragmala from Kutch, an old map on the textile, showing Gujarat and a part of Rajasthan, four Indo-French coins, two Indo-Danish coins and a coin of Tipu Sultan. The Museum also received as a gift one marble sculpture of Uma-Mahesvara, belonging to the late medieval times. Other acquisitions during the period were eight Greek coins and some brass ornaments.

8. GOVERNMENT MUSEUM, BIKANER.—For better security, windows of the painting and folk-art gallery were provided with expanded metal sheets.

9. ARCHAEOLOGICAL MUSEUM, BODHGAYA.—The Sunga railing around the present Mahabodhi temple was to be removed to the Museum and in its place a railing, cast in cement, was to be provided. The major part of the latter work has been completed.

For providing better security collapsible gates were fixed at the entrance of Gallery nos. 1 and 2.

10. PRINCE OF WALES MUSEUM OF WESTERN INDIA, BOMBAY.—In the reorganized key-gallery coloured tiles of the seventeenth-nineteenth century from Sind and other metal-sculptures were displayed in newly-designed showcases. A new gallery of pre-and protohistoric period is in the process of being set up. It is proposed to display in this gallery protohistoric antiquities from West Asia, Stone Age implements, Harappan and other Chalcolithic material from Indo-Pakistan and objects belonging to the Megalithic Cultures. Fourteen carved bricks from Mirpurkhas and four stone sculptures were given to the National Museum in exchange of six stone sculptures. About a dozen sculptures belonging to different periods and regions were also acquired by the Museum.

A series of lectures under 'Know your Museum' Series were delivered by the Curators of the Museum as well as scholars from outside. An exhibition of' 'Dawn of civilization in Maharashtra' covering a period from prehistoric times to the end of Satavahana period was organized in collaboration with the Archaeological Survey of India and the Deccan College Post-graduate and Research Institute, Poona. The important objects on display included famous Daimabad bronzes of the chalcolithic period, railing pillars of Buddhist *stupa* from Pauni, terracottas from Ter, the famous ivory figure of Sri Lakshmi, excavated objects from Kolhapur including the bronze figure of Poseidon, etc. The exhibition was visited by students and scholars in large numbers.

11. INDIAN MUSEUM, CALCUTTA.— A Vishnu image of eighth century A.D. probably from Uttar Pradesh and an image of Bhairava (pl. LXVI), besides one hundred and twenty-three copper coins of various denominations and issued by various rulers, bulk of them belonging to Jaunpur Sultans, were acquired.

A new feature "The Exhibit of the Month'—was started from this year in which the most interesting recent acquisition pertaining to each section is shown in a showcase. The Museum participated in the exhibition of Mother Goddess, organized by the National Museum, New Delhi, by sending a few sculptures and bronze images.

12. NAGARA-SRI MUSEUM, CHURU.—Sculptures, pottery, manuscripts, paintings, etc., were rearranged for better display. The Museum published regularly its quarterly journal, *Maru-sri,* during the year.

13. CHANDRADHARI MUSEUM, DARBHANGA.—A new gallery named after the donor late Shri P. Baldeo Jha, who gifted gold and silver ornaments belonging to the seventeenth and and eighteenth centuries A.D.3 was opened in the Museum.

14. ARCHAEOLOGICAL MUSEUM, RED FORT, DELHI.—The Museum was opened to the public after reorganizing its remaining southern half where glazed tiles, carpets, dresses, arms and armours, including a model wearing armour, etc., of late Mughal times were exhibited. Most of the tiles bear variously the intricate geometrical design, horse-riders, royal personnel, female figures, hunting scenes, etc., executed in low relief in polychrome.

15. STATE MUSEUM, ASSAM, GAUHATI.—The Museum acquired twenty-five small metallic art objects, including images from Kahlipara (Odalbakra), near Gauhati, of the ninth-tenth century A.D. They belong variouslv to Indra, Surya, Tara, Manasa and Vishnu (pl.LXVII). Eight stone sculptures, datable to fourteenth to sixteenth century A.D., were acquired from Tezpur. Seven stone plaques, of the twelfth-thirteenth century A.D., of Vishnu, Mahishamardini

and Surya (pl. LXVIII) have also been acquired from the archaeological site at Ambari, near the State Museum itself.

16. ARCHAEOLOGICAL MUSEUM, HALEBID.—Found in several pieces, the colossal image of Tirthankara Adinatha (5-70 m high) shows the figure standing in *kayotsarga-mudra.* This image is now exhibited in the Museum after the completion of the successful mending operation (pl. LXIX).

17. ARCHAEOLOGICAL MUSEUM, HAMPI.—The reorganization work of Gallery 2 was completed. Important exhibits of this Gallery are stucco figures of Radha and Krishna, stone sculptures of seated image of Varaha, Sita in Asokavana and Seshasayi-Vishnu as well as colossal figures of Garuda and Hanuman, all belonging to the Vijayanagara period. The system of functional display and monochromatic colour effect has been adopted also in this Gallery.

In the verandah, opposite the main entrance, a convex recess with concealed lighting was created in order to display the plaster-casts of Krishnadeva Raya and his two consorts. Two original pillars of the Vijayanagara times have been fixed against the two mosaic pillars at the entrance to make the facade attractive.

The scale-model of Hampi ruins was taken up in cement and a major part has been completed. The model gives a bird's eye view of the hillocks, ruins, monuments, etc. of the medieval city.

18. ARCHAEOLOGICAL MUSEUM, HOSHIARPUR.—Nine sculptures representing Vishnu, Indra, Ganesa, Siva-Parvati, Brahma and Mahavira were added to the existing collection. About 150 paintings of Mughal, Kangra, Patiala, Punjab and Rajasthan schools were also acquired, besides a good number of other antiquities and art objects.

19. STATE MUSEUM, HYDERABAD.—During the year under review four hundred and six objects were acquired by the Museum. The notable amongst them are three copper-plates, images of Mahesa-murti and Ganapati, a textile with *kalam-kari* work depicting the story of the *Mahabharata,* rare paintings of Kerala and Jaina schools and twenty-seven paintings of contemporary artists. Face-lifting was given to the galleries of the Museum and special exhibition was organized during the World Telugu Conference.

The Museum lent some objects to a museum at Mahbubnagar. In order to popularize its activities amongst the public the Museum has started organizing special exhibitions.

20. GOVERNMENT CENTRAL MUSEUM, JAIPUR.—A plan for the reorganization of the geological galleries was chalked out and a few showcases were prepared for display. The models of the artistic pieces were prepared by the artist of the Department. Some old models were also repaired.

21. GOVERNMENT MUSEUM, JODHPUR.—To commemorate the 2500 anniversary of Lord Mahavira, an independent gallery, named as 'Mahavira Section' was added to the Museum. The aim of the new gallery is to focus the contribution of western Rajasthan to Jaina art.

22. ARCHAEOLOGICAL MUSEUM, KHAJURAHO.—The enclosure walls of the open-air Jardine Museum (sculpture shed) were provided with angle-iron and barbed-wire fencing for better protection and safety. As a preventive measure, Mercury vapour lamps have been provided not only in the Museum but also in the open-air sculpture-shed (Jardine Museum).

For promoting tourism, the Government of Madhya Pradesh organized 'Asia Seventy-Five Festival' at Khajuraho. The Archaeological Museum, Khajuraho participated in this

festival. Complete face-lifting was done to this Museum on this occasion by repolishing the pedestals, repainting the walls of the galleries and showcases and providing new labels.

23. ARCHAEOLOGICAL MUSEUM, KONDAPUR.—Several measures were taken to tighten the security and protect the exhibits from natural phenomena. For instance, rain visors were fixed on the door-shutters to prevent rain water from entering the galleries; the windows and ventilators were repaired; and more number of light-points were provided.

24. CALICUT MUSEUM, KOZHIKODE.—This Museum was opened during the year under review. The Museum has separate galleries for paintings, sculptures, bronzes, coins and pre historic objects. Model of the Vallabha temple, Tiruvalla, has been displayed in the temple-model gallery which gives an intimate idea of intricate constructional aspect of a typical Kerala temple.

25. SITE MUSEUM, KRISHNAPURAM.—Alterations were carried out in the museum-building and a set of models of prehistoric monuments was also arranged. A Buddha image of the ninth century A.D. has been acquired for the museum.

26. STATE MUSEUM, LUCKNOW.—The work of setting up an Anthropological Gallery, showing material relating to selected tribes of Uttar Pradesh has been commenced. Photographic documentation of the first-rate antiquities in the sections devoted to jewellery, paintings and bronzes has been completed. Another gallery on metal images, arms and decorative pieces, etc., is being set up.

Three copper-plates including one of king Sunapala, son of king Devapala and two of Gaharvala king Jayachandra Deva of Kannauj, respectively from Mirzapur and Etawah regions, were acquired. A hoard of forty-five gold coins, including forty-four of Huvishka and one of Vasudeva along with five Kushan gold ornaments were also acquired by the Museum. Another noteworthy addition is an Umalingam-murti, measuring 56 x 38 cm, of about tenth century A.D., made on light buff-coloured stone; it came from District Moradabad.

27. GOVERNMENT MUSEUM, EGMORE, MADRAS.—Of the new additions acquired as Treasure-Trove, mention may be made of two metal images—Nataraja and Devi—from Natham, Vridhachalam Taluk, District South Arcot; six metal lamps from Panchora Estate, Nellialama, Gudalur Taluk, District Nilgiris; twenty-one metal images, five Ayyanars on elephant, four Devis, three crawling Krishnas, Ganesa, Rama, etc. from Paruthiyur hamlet of Ardhanari-palayam, Pollachi Taluk, District Coimbatore; two metal pieces, lid and *prabha* from Madathikkadu, Pattukkottai Taluk, District Thanjavur; one metal figure of crawling Krishna from Maranthai, Tenkasi Taluk, District Tirunelveli; one metal image of Sridevi from Dipangudi, Nannilam Taluk, District Thanjvaur; twenty-five metal pieces, six vessels, crawling Krishnas, pedestal with serpent-hood, *linga* made of rock-crystal and a host *of puja* vessels from Kaliyanur, Tiruchengode Taluk, District Salem; and one stone sculpture of Vishnu from Arappalayam, Madurai.

Twelve portraits in oil of the erstwhile British rulers were transferred from Rajaji Hall, Madras, to the Museum for display. One stone fragment, containing symbolic Gajalakshmi and four other figures were received as a gift from the villagers of Perumukanchi village, Wallajah Taluk, District North Arcot. One metal image of Devi from Sendimangalam, Tirunelveli Taluk and District was sent as unclaimed property by the Tahsildar, Tirunelveli.

Several hundreds of coins were added to the Numismatics Section while the Anthropology Section was enriched not only by Treasure Trove objects but also by the acquisition of one hundred musical instruments. The Geological Survey of India, Tamil Nadu Circle, Madras,

made a gift of a portrait of Robert Burce Foote and a painting of prehistoric man in the stage of hunting.

All the thirty-five faded aluminium labels in the Brahmanical sculpture-gallery were replaced by new painted labels with wooden frames. The early indigenous sculptures were provided with new printed labels bound with glass and calico.

28. FORT ST. GEORGE MUSEUM, MADRAS.—Setting up of the Mysore Wodeyar Gallery, as per recommendations of the Estimates Committee of the Parliament, has been completed. A plaster cast of the statue of Kanthirava Narasaraja Wodeyar was prepared and displayed.

Rewriting of labels and charts for the medals on display and also for the exhibits in Galleries 6 and 7 has been completed. A drawing, showing different types of palanquins that were in use during the last three centuries was prepared as a supplement to the display in the galleries.

29. GOVERNMENT MUSEUM, MANDOR.—A new gallery was added to the Museum for preserving objects of local interest, including portraits of rulers of Jodhpur.

30. ARCHAEOLOGICAL MUSEUM, MATHURA.—The Museum has enriched its collection by the acquisition of twenty-four objects, viz., six prehistoric implements, twelve sculptures, five terracottas, and one jade handle. The noteworthy objects are: a horse-shaped handle in jade, studded with pink enamel on betel-shaped gold, ascribable to the eighteenth century A.D. ; a fragmentary door-jamb, representing a Bodhisattva (Siddhartha) in meditation with *mangala-kalasa,* stalked lotus, etc., of the Kushan period; a fragmentary Karttikeya image, of the medieval times; a beautiful stone umbrella carved with light auspicious motifs, viz. *mangala-kalasa, ,nidhipatra, srivatsa, ratna-patra, mala-patra, sankha, triratna* and *svastika,* of early Kushan period of Mathura; and a dated fragmentary image of standing Buddha.

31. ARCHAEOLOGICAL MUSEUM, NAGARJUNAKONDA.—Considerable improvements were made in the Museum by repolishing and repainting showcases, pedestals as well as by providing coir-matting. The galleries were also repainted in suitable colours.

32. ARCHAEOLOGICAL MUSEUM, NALANDA.—A unique double-sided stone sculpture of the Pala period showing Jambhala on one side and Uma-Mahesvara-on the reverse was acquired. Reorganization of Gallery 2 and the Inscription Gallery has been taken up, besides painting of walls of the galleries. Lighting arrangement was improved around the godown as a security measure.

33. ARCHAEOLOGICAL MUSEUM, PURANA QILA, NEW DELHI.—A portion of the collection comprising excavated material from the 1970-74 excavation was displayed in the galleries for the public. The exhibits include pottery, terracotta, beads, figurines, coins, etc.

34. NATIONAL MUSEUM, NEW DELHI.—Three important exhibitions were held during the period under report: the 'Jain Art through the Ages'; 'Ramayana in Asian Tradition'; and 'Amir Khusro'. Many museums collaborated in the venture for the first exhibition which displayed sculptures, bronzes, terracottas, wood-carvings, paintings, manuscripts, etc. The exhibition on 'Ramayana in Asian Tradition' also included speciments from other museums.

Amongst the important acquisitions were fourteen terracottas of Mirpurkhas, bronze figures of Vishnu of the Pala period, Tara and Indra of Nepal, terracottas of Ahichchhatra of the Gupta period, stone sculptures of Maitreya (second century A.D.), Vishnu from Bengal, *dvarapala* of ninth-tenth century A.D. (pl. LXX) and standing Lokesvara (eleventh century A.D.) from central India. These were obtained either through purchase or through exchange.

35. PADMANABHAPURAM PALACE MUSEUM, PADMANABHAPURAM.—A portion of the palace-complex is being remodelled to suit the requirements of the proposed museum.

36. STATE MUSEUM, PATNA.—A good number of antiquities discovered during the Vaishali excavation during the period 1958-62 were received by the Museum. An image of Buddha, in black basalt, in *bhumisparsa-mudra* and three silver coins of Vigrahapala are examples of other notable acquisitions.

37. ARCHAEOLOGICAL MUSEUM, SANCHI.—Medium-sized stone sculptures in the Reserve Collection were rearranged on masonry pedestals. The galleries were given a new look by re-polishing the pedestals and showcases as well as by providing new coir-mats. More fans were provided in the galleries for the comfort of the visitors.

A cast of one of the two Bodhisattva Maitreya figures, of the late Gupta period, originally recovered from the Sanchi monuments, was received from the Victoria and Albert Museum, London, in exchange of the cast of the other Bodhisattva figure, exhibited in this Museum.

38. ARCHAEOLOGICAL MUSEUM, SARNATH..—The broken teak-ply veneering of the wooden pedestals in the Main Hall and in Gallery 2 had been replaced. Improvement of the main Gallery and complete reorganization of Gallery 4, exhibiting medieval antiquities, has been taken up.

39. STATE MUSEUM, SIMLA.—Four hundred and five objects were acquired during the year 1975-76 through purchase, gift, transfer and exploration. These include the collection of earlier examples of the Pahari paintings, belonging to Shri Kartar Singh of Bassan Waziran village. His collection was jointly purchased by this Museum and the National Museum, New Delhi. Eighteen silver coins of the Mughal period, discovered in Brahmour sub-tahsil, are preserved in this Museum and also in the Bhuri Singh Museum, Chamba. The Museum received as gift from the State Museum, Lucknow, thirty-three sculptures and forty-one terracottas. The sculptures are mostly from Mathura of the Kushan and the Gupta times.

A seminar on Himachal Arts and Archaeology was organized in October, 1975.

40. TIPU SULTAN MUSEUM, SRIRANGAPATNA.—Four pencil-sketches, depicting Tipu's sons, were chemically treated. One of the rooms has been converted into a period-room showing mostly articles used by Tipu Sultan. The personal dress of Tipu Sultan, consisting of a gold-laced *kurta,* a *pyjama,* a palm-leaf hat and an inscribed sword were exhibited on a plaster-cast model of Tipu Sultan seated on a wooden chair. To make the display more lively two eighteenth-century guns and an engraving, showing Tipu against the background of a curtain, was introduced.

41. ARCHAEOLOGICAL MUSEUM, TRICHUR.—A new building was acquired for this Museum which was previously housed in the Town hall, Trichur. The set-up shows four galleries, viz., Key Gallery, Sculpture Gallery, Temple-model Gallery and Numismatics Gallery.

42. GOVERNMENT MUSEUM, UDAIPUR.—A detailed catalogue of about two hundred and fifty miniature paintings of Mewar School was prepared. These paintings cover the subjects like *Raga-Ragani, Gita-Govinda, Kazi-Du-Pyaza Mulla, Gajendra-moksha,* etc.

43. ARCHAEOLOGICAL MUSEUM, VAISHALI.—The main hall of the Museum was formally opened to the public in May 1975. Ten stone sculptures and terracotta objects, pottery, beads, etc. of the Maurya, Sunga, Kushan and Gupta periods are displayed here.

During the period under review two stone sculptures—one of Buddha, in *bhumisparsa-mudra,* from Bhakra and the other showing spouted channel in the shape of *makara* head—were acquired.

44. BHARAT KALA BHAVAN, VARANASI.—During the period under review Bharat Kala Bhavan collected 611 coins of various types. The collection includes silver punch-marked coins, of Indo-scythian, and the Gupta kings. Special mention may be made of a Shah Alam's silver coin, which bears mint-master's name.

Bharat Kala Bhavan has also collected forty stone sculptures, one hundred and three terracotta figurines, seventy-eight bronze images, seventeen wooden figures, three terracotta seals, and about thirty-five wooden specimens. Of these, mention may be made of the sculptures of Siva-gana, of the Gupta period, Rishabhanatha of *circa* tenth century A.D., coping stones of the Mathura-Kushan period, standing Siva of the late Gupta period, and a *kirttimukha* of *circa* seventh centuty A.D.

45. ARCHAEOLOGICAL MUSEUM, VELHA GOA.—Three wood-carvings and four paintings, three on wood and the fourth one on canvas, were acquired by the Museum. Besides, Galleries 7 and 8 were reorganized (pl. LXXI).

VIII. PRESERVATION OF MONUMENTS

MONUMENTS OF NATIONAL IMPORTANCE

CENTRAL CIRCLE

Madhya Pradesh

1. JARDINE MUSEUM, KHAJURAHO, DISTRICT CHHATARPUR.—Barbed wire fencing was fixed over the stone compound-wall of the Museum.

2. KANDARIYA AND DEVI JAGADAMBA TEMPLES, KHAJURAHO, DISTRICT CHHATARPUR.—Flag-stone flooring was restored after replacing the underlying decayed lime concrete.

3. BUDDHIST CAVES, BAGH, DISTRICT DHAR.—Fallen chunks of stones were removed and the original flooring and walls of Cave 1 were exposed. Frontage of Cave 2 was improved and the eastern embankment was watertightened by providing stone pitching to check further erosion. Approach road leading from Cave 1 to 2 was reconditioned.

4. ASHRAFI MAHAL, MANDU, DISTRICT DHAR.—Original concrete flooring at the frontage of the tomb was restored.

5. CHISTI KHAN'S PALACE, MANDU, DISTRICT DHAR.—The terrace was watertightened and the joints in the masonry wall were pointed with cement mortar.

6. GADA SHAH'S PALACE, MANDU, DISTRICT DHAR.—Flooring was restored and the terrace was watertightened. The cistern was restored and underpinning was done to the masonry wall of the monument.

7. HATHI POLE, MANDU, DISTRICT DHAR.—Damaged wall of the gate was restored.

8. HOSHANG SHAH'S TOMB, MANDU, DISTRICT DHAR.—Underpinning was carried out to the ashlar masonry wall of the Dharmashala attached to the complex.

9. JAHAZ MAHAL, MANDU, DISTRICT DHAR.—Damaged plaster of the terrace was restored. Plaster on the walls of the monument was filleted and the old railing was repaired.

10. KAPUR TALAO, MANDU, DISTRICT DHAR.—The damaged arches,, retaining wall and parapet wall were restored as per original.

11. NAHAR JHAROKA, MANDU, DISTRICT DHAR.—The damaged wall of the complex was restored and watertightened. Debris from the eastern quadrant of the palace was removed.

12. PALACES (EASTERN AND WESTERN GROUPS), MANDU, DISTRICT DHAR.—The work of underpinning, restoring and watertightening the monument was carried out.

13. JAMI MASJID, ASIRGARH, DISTRICT EAST NIMAR.—A portion of the approach leading to the Masjid was watertightened with apron cushion.

14. MALYAGARH GATE, ASIRGARH, DISTRICT EAST NIMAR.—The damaged portion of the wall of the gate was restored and underpinning was done in the northern wall of the fort.

15. OLD FORT, BURHANPUR, DISTRICT EAST NIMAR.—Walls of the complex were under pinned and watertightened wherever necessary and the cells were exposed.

16. RUINED PALACE, BURHANPUR, DISTRICT EAST NIMAR.—The flooring of the palace was reconditioned as per the original.

17. RUINED TEMPLES, BUDHI CHANDERI, DISTRICT GUNA.—Plinths of the temples were exposed and approach roads for each temple were laid.

18. BADA MADARSA, CHANDERI, DISTRICT GUNA.—The work of constructing the enclosure wall in coursed rubble masonry is in progress.

19. BATTISI BOADI, CHANDERI, DISTRICT GUNA.—The work of constructing the enclosure wall in coursed rubble masonry is in progress.

20. JAMI MASJID, CHANDERI, DISTRICT GUNA.—The work of constructing the enclosure wall in coursed rubble masonry is in progress.

21. KOSHAK MAHAL, CHANDERI, DISTRICT GUNA.—The work of constructing the enclosure wall in coursed rubble masonry is in progress.

22. HATHI POLE, MAN MANDIR PALACE, FORT, GWALIOR, DISTRICT GWALIOR.—Flag-stone flooring of the monument was restored.

23. MARIMATA TEMPLE, GWALIOR, DISTRICT GWALIOR.—Masonry work of the monument was repaired as per the original.

24. MOHAMMAD GHAUS'S TOMB, GWALIOR, DISTRICT GWALIOR.—The graves were repaired and watertightened.

25. SAS BAHU TEMPLE, FORT, GWALIOR, DISTRICT GWALIOR.—Stone flooring of the temple was reconditioned.

26. TELI-KA-MANDIR, FORT, GWALIOR, DISTRICT GWALIOR.—The area around the temple was improved and the monument watertightened.

27. ROCK-CUT CAVES, DHAMNAR, DISTRICT MANDASOR.—The terrace of the caves was watertightened with cement concrete, matching the rock surface.

28. YASHODHARMAN'S VICTORY PILLAR, SONDANI, DISTRICT MANDASOR.—Barbed wire fencing was repaired and the area around the platform was laid with rammed *morum.*

29. BEGUM MAHAL, CHAUGAN, DISTRICT MANDLA.—The walls of the complex were restored and watertightened (pl. LXXII).

30. RANMUKTESVARA TEMPLE, KAKARRAMATH, DISTRICT MANDLA.—The walls of the temple were watertightened and the approach road was provided with stone flooring (pl. LXXIII).

31. ROCK-PLANS, BHOJPUR, DISTRICT RAISEN.—Guard railings were provided to the plans and designs of the temple engraved on the rocks.

32. SIVA TEMPLE, BHOJPUR, DISTRICT RAISEN.—The work of restoring the bulged and damaged portions of the platform in cut stone masonry is in progress.

33. MOSQUE NEAR BARADARI, FORT, RAISEN, DISTRICT RAISEN.—Iron shutters were provided to the mosque.

34. RANI AND JHINJRI MAHAL, FORT, RAISEN, DISTRICT RAISEN.—Walls of the monu ments were restored wherever necessary and watertightened.

35. SIVA TEMPLE, FORT, RAISEN, DISTRICT RAISEN.—The damaged portions of the masonry walls of the temple were restored and the broken lintels were replaced by new ones matching the original.

36. ANCIENT MONUMENTS, SANCHI, DISTRICT RAISEN.—The walls of the Monastery 46 were watertightened and the flooring was reconditioned. Damaged stone pavement of the courtyard of the Monastery 47 was reconditioned. Approaches leading to Monastery 51 were reconditioned after providing stone cushion. The square boses of *stupas,* Stupa 5, and miniature *stupa* were watertightened.

37. SARAI, RAVERKHEDI, DISTRICT WEST NIMAR.—The terrace and the walls of the monument were watertightened, and the original flooring was exposed after removing the debris.

38. TEMPLE, RAVERKHEDI, DISTRICT WEST NIMAR.—The damaged masonry platform was restored as per the original.

EASTERN CIRCLE

Assam

39. MOUND AND RUINS OF STONE TEMPLE, DAPARBATIA, TEZPUR, DISTRICT DARRANG.—Barbed wire fencing was provided to the monument.

40. ROCK-SCULPTURES, GAUHATI, DISTRICT GAUHATI.—The damaged platform in front of the images was repaired and the area around was fenced.

41. DEBIDOL, GAURISAGAR, DISTRICT SIBSAGAR.—Open joints in the walls were filled up and replastered.

42. VISHNUDOL, GAURISAGAR, DISTRICT SIBSAGAR.—Deep-rooted trees, grown over the temple, were uprooted and the cracks were grouted with mortar. The inner surface of the temple was plastered. The damaged brick work in the gateway of the compound was restored.

43. GOLAGHAR, JAYASAGAR, DISTRICT SIBSAGAR.—The plaster of the walls was renewed and the damaged flooring was repaired.

Orissa

44. ROCK-INSCRIPTION OF ASOKA, JAUGADA, PANDIA, DISTRICT GANJAM.—The old and dilapidated protective iron structures were replaced by RCC shed to provide space and light to the inscriptions. The approach pathway was repitched in cement mortar.

_ 45. ANANTA VASUDEVA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The damaged ceiling was conditioned by providing new beams, and the open joints and cracks were pointed.

46. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT PURI.—In continuation of the last year's work *(1974-75,* p. 94), the renewing of the damaged doors and windows of the temple and the wooden *vimana* of the temple is in progress.

_ 47. MINOR SHRINE 24, LINGARAJA TEMPLE-COMPLEX, BHUBANESWAR, DISTRICT PURI.—Vertical cracks, developed from top to bottom in the walls of the temple, were stitched, and dangerously hanging lintels were set in proper place. The structure was strengthened by resetting loose and dislodged masonry and renewing the stones reproducing the carvings in broad outline wherever necessary. The temple was throughly grouted to fill up the voids inside.

48. MARKANDESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—In continuation of the last year's work *(1974-75,* p. 94), a retaining wall of laterite stones was constructed after removing the debris from the compound.

49. MEGHESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—In continuation of the last year's work *(1974-15,* p. 94), the cracks in the walls of the temple were grouted and pointed, and the area was fenced.

50. MITRESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—In continuation of the last year's work *(1974-75,* p. 95), the worn-out and dislodged masonry of the compound wall of the temple was restored and the missing portion were renewed with dressed laterite slabs matching the original.

51. PARBATI TEMPLE, BHUBANESWAR, DISTRICT PURI.—The damaged ceiling of the temple was repaired by providing stone brackets wherever necessary, and expanded metal fitted into wooden frames. The worn-out flooring was reconditioned with dressed stone slabs. Pavement of the temple was provided with cement concrete cushion.

52. SISIRESVARA TEMPLE, BHUBANESWAR, DISTRICT' PURI.—In continuation of the last year's work *(1974-75,* p. 95), the damaged roof of the *jagamohana* was repaired, and all the broken and missing stones in the walls, pilasters, lintels, beams, etc., were replaced with dressed sandstone members.

53. ROCK-INSCRIPTION OF ASOKA AND THE SCULPTURE OF ELEPHANT, DHAULI, DISTRICT PURI. _ Cracks and fissures developed in the monolithic elephant were grouted and mended.

54. JAGANNATH TEMPLE, PURI, DISTRICT PURI.—Thick layers of plaster acceretion on the facade of the *vimana* up to a certain height was removed, thereby exposing original carvings including human and animal figures. Loose and dislodged sculptures and carved stones thus exposed were refixed to their original position with the help of copper clamps and dowels.

In order to check the leakage from the top of the *vitnana,* grouting was carried out from the *amalaka* part.

55. LAKSHMI TEMPLE, JAGANNATH TEMPLE-COMPLEX, PURI, DISTRICT PURI.—In continuation of the last year's work *(1974-75,* p. 95), the accretionary thick plaster was removed from the outer surface of the walls of the temple, as per recommendation of the Expert Committee, thus exposing sculptures (pl. LXXIV) and carved surface. Cracks and open joints on the top of the temple were grouted and sealed with composite mortar matching the original to make the structure watertight. The decayed and missing members of the structure were replaced by new ones cut to shape and size wherever necessary. The work is in progress.

Tripum

56. UNKOTI SHRINES, KAILASHAR, TRIPURA.—The site was cleared of wild vegetation growth. Catch-water drains were repaired and a pathway was laid for approach to the sculpture pieces.

West Bengal

57. SIDDHESVARA TEMPLE, BAHULARA, DISTRICT BANKURA.—Deep-rooted trees on the temple were removed and the damaged portions were repaired with *lime-surkhi* mortar. The area around the monument was cleared of bushes and thereafter dressed and levelled. The boundary wall was repaired and renewed wherever necessary.

58. RADHA VINOD TEMPLE, BISHNUPUR, DISTRICT BANKURA.—The southern portion of the sloped roof which had collapsed due to heavy rains was renovated matching the original.

59. SHYAM SUNDAR TEMPLE, MADANMOHANPUR, DISTRICT BANKURA.—The trees grown on the temple were uprooted and the cracks and holes in the temple-walls were grouted. The area around the monument was fenced with barbed wire.

60. KRISHNACHANDRAJI'S TEMPLE, KALNA, DISTRICT BURDWAN.—Deep-rooted trees were uprooted from the temple and its compound. The area around the temple was dressed and levelled by filling the ditches.

61. RATNESVARA TEMPLE, KALNA, DISTRICT BURDWAN.—The damaged ornamental brick pillars and cornice mouldings were replaced matching the original (pl. LXXV). The work is in progress.

62. ANCIENT MOUND, PANDU-RAJAR-DHIBI, PANDUK, DISTRICT BURDWAN.—The Archaeological site was fenced with barbed wire.

63. VASUDEVA TEMPLE, BANSBARIA, DISTRICT HOOGHLY.—The bulged-out wall of the temple was dismantled and rebuilt as per the original, and the open joints in the terracotta plaques on the facade of the temple were pointed. The damaged and spongy flooring was reconditioned and pecked up.

64. MOSQUE AND MINAR, PANDUA, DISTRICT HOOGHLY.—The damaged masonry was renewed after removing the decayed plaster in the Minar.

65. TOMB AND MOSQUE OF ZAFAR GHAZI, TRIBENI, DISTRICT HOOGHLY.—Open joints in the stone masonry of the monuments were pointed.

66. BARADUARI, GAUR, DISTRICT MALDA.—The damaged and spongy flooring was reconditioned and pecked up thoroughly. The area was fenced with barbed wire.

67. DAKHIL DARWAZA, GAUR, DISTRICT MALDA.—The work of repairing the damaged vaulted roof is in progress.

68. FIROZ MINAR, GAUR, DISTRICT MALDA.—Extensive repairs to the brick-work of the monument and plastering the surface with composite plaster, wherever necessary, were carried out, and expanded metal shutters and ventilators were provided. The renewal of the barbed wire fencing with painted angle-iron posts were done.

69. ADINA MASJID, PANDUA, DISTRICT MALDAH.—Domes over Badsha-ka-Takht were reterraced and the damaged flooring was reconditioned. The damaged and missing portions of the wooden platform were also repaired as per the original.

70. TOMB OF AZIMUNNISSA BEGUM, AZIMABAD, DISTRICT MURSHIDABAD.—In continuation of the last year's work *(1974-75,* p. 96), the underpinning of the brick-work of the monument and the compound wall was carried out. Walls of the monument were plastered with lime-mortar.

71. DEVIL'S MOUND AND RAJA KARNA'S PALACE, CHHIRUTI, DISTRICT MURSHIDABAD.—The exposed extant portions of the walls were watertightened and underpinned wherever necessary.

72. TOMB OF MIRMADAN, FARIDPUR, DISTRICT MURSHIDABAD.—The missing and damaged portions of walls and flooring and the damaged door were repaired.

73. MOSQUE, KATRA, DISTRICT MURSHIDABAD.—The damaged and exposed brick-work of the fallen dome was reconstructed with composite mortar and the vertical cracks stitched. Existing domes which were leaking were repaired by providing lime terrace. The fallen portion of the plaster was renewed (pl. LXXVI).

74. HAZARDUARI, MURSHIDABAD, DISTRICT MURSHIDABAD.—Deep-rooted trees in the masonry fabric of the monument were removed and tree-killer applied. The damaged portions of the masonry were repaired matching the original. Three damaged sky-light openings were repaired. The leaking roofs over the China rooms and northern vestibule were repaired with terracing in lime-concrete after replacing worn out wooden *burgahs* and tiles.

75. TOMB OF SUJA-UD-DIN, ROSHNIBAG (ROSHNIGANJ), DISTRICT MURSHIDABAD.—The damaged doors and windows were replaced with new ones, and the dug up portion of the tomb by the treasure-hunters was repaired. The damaged compound wall was repaired.

76. MOSQUE AND TOMB OF MURSHID KULI KHAN, SABJIKATRA, DISTRICT MURSHIDABAD.—In continuation of the last year's work *[1974-75,* p. 96), the fallen and damaged domes and masonry of the two storeyed *Katra* were reconstructed as per the original. The flooring was reconditioned and the exposed wall-tops were watertightened. The work of reconditioning the flooring in the forecourt with bricks in check and stripe pattern is in progress.

FRONTIER CIRCLE

Jammu and Kashmir

77. AVANTISVAMI TEMPLE, AVANTIPUR, DISTRICT ANANTNAG.—The pathway of the temple was paved with flag-stones in cement-mortar, and the work of providing grill-fencing to the area is in progress.

78. SHIV TEMPLE, PAYECH, DISTRICT ANANTNAG.—The protected area around the monument was enclosed by a barbed wire fencing.

79. ANCIENT BUDDHIST SITE, HARWAN, DISTRICT SRINAGAR.—The debris accumulated due to cloud burst in 1973 was cleared.

80. PATHAR MASJID, SRINAGAR, DISTRICT SRINAGAR.—The earth packing over the roofs of the mosque and dwarf wall was taken up for further restoration work.

81. KATHI DARWAZA, HARI PARBAT, SRINAGAR, DISTRICT SRINAGAR.—The fallen and damaged portions of the vaulted ceiling of the chamber on the western side of the gateway were reconstructed with rubble stone masonry in *lime-surkhi* mortar. The bulged and fallen walls on either sides of the western dome were also restored with rubble stone masonry in lime-*surkhi* mortar.

82. SULTAN ZAIN-UL-ABDIN MOTHER'S TOMB, BADSHAH, ZAINA KADAL, DISTRICT SRINAGAR.—The damaged circular pillars in the western side of the central dome, which were a threat to the dome, were conditioned in lime-cement mortar with sunk *surkhi* pointing in conformity with the original. The damaged and broken *chhajja* on the south-west was restored with brick-tiles, laid over lime-concrete.

83. TEMPLE 1, KRIMCHI, DISTRICT UDHAMPUR.—The platform, forming the basement of the temple, and part of the *viaha-mandapa* wall on the northern side were restored in conformity with the original. The foundation of the platform and *maha-mandapa* was strengthened and the missing portions of the wall were reconstructed in lime cement mortar. The damaged and missing stones were replaced by old stones collected at the site after necessary dressing.

84. DEVI BHAGWATI TEMPLE, MANWAL, DISTRICT UDHAMPUR.—The foundation of the *maha-mandapa* was strengthened by providing concrete of suitable thickness. The dwarf wall of the *maha-mandapa* was restored by replacing the missing stones.

85. SAMADHI OF QUEEN OF RAJA SUCHET SINGH, RAMNAGAR, DISTRICT UDHAMPUR.—The damaged pathway was paved with dressed stones. Part of the fallen enclosure wall on the southern side of the Samadhi was also restored with dressed stones in lime-mortar.

MID-EASTERN CIRCLE

Bihar

86. ANCIENT STUPA, ANTICHAK, DISTRICT BHAGALPUR.—Extensive repair was carried out by way of underpinning and pointing of open joints in the masonry. Brick floorings of the

pradakshina-pathas of the terraced *stupa* were made watertight with lime-mortar. Clearance of debris is in progress.

87. RUINED FORTRESS, NANDANGARH, DISTRICT CHAMPARAN.—In continuation of the last year's work *(1974-75)* clearance of debris was carried out in the north-eastern corner of the *stupa* exposing three terraces with thirteen courses of moulded bricks.

88. RAJA BALI-KA-GARH, BALIRAJGARH, DISTRICT MADHUBANI.—The work of providing barbed wire fencing around the ancient fortified wall and exposing the northern portion of the fortification wall is in progress.

89. ASOKAN COLUMN, KOLHUA, DISTRICT MUZAFFARPUR.—In continuation of the last year's work *(1974-75,* p. 97), the removal of debris in and around the *stupa* was completed which resulted in exposing of the different phases of the *stupa* along with two miniature votive *stupas* in between the Lion Pillar and the main brick *stupa.*

90. SHER SHAH'S TOMB AND TANK, SASARAM, DISTRICT ROHTAS.—The damaged flooring of the tomb was reconditioned with lime-mortar. Expanded metal was provided to the doors and windows of the main tomb and gateway. Expanded metal was repainted matching the stone colour. The area in front of the tank was fenced with barbed wire.

91. TOMB OF HASAN SUR SHAH, SASARAM, DISTRICT ROHTAS.—The decayed plaster on the gate was removed and replastered with fresh lime-cement mortar.

Uttar Pradesh

92. EXCAVATED REMAINS, GANWARIA, DISTRICT BASTI.—The excavated remains were watertightened, and a proper gradient was provided for easy flow of rain water.

93. EXCAVATED REMAINS, PIPRAHWA, DISTRICT BASTI.—The excavated southern, eastern and western monasteries were watertightened with lime-cement mortar. The exposed brick structures were further strengthened by recessed pointing. All the sites were provided with gradients for easy flow of rain water.

94. NIRVANA STUPA, KUSHINAGAR, DISTRICT DEORIA.—The work of reopening inspection trench and refilling the same with brick masonry in cement-mortar was completed.

95. CHARANGULI MASJID, JAUNPUR, DISTRICT JAUNPUR.—The work of relaying lime-concrete flooring and pointing of open joints in the stone and brick masonry is in progress.

96. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI.—In continuation of the last year's work *(1974-75* p. 98), miniature *stupa* and structures towards the east of the main shrine were watertightened with lime and *surkhi* after removing the decayed brick courses at the top. Recess pointing was done to the joints in the masonry. The pathway towards east of the main shrine was laid with lime-concrete. The approach pathways to the residential quarters, adjacent to the Museum were conditioned. Broken covering slabs of the drains near the Museum were replaced.

97 DHARHARA MOSQUE, VARANASI, DISTRICT VARANASI.—The damaged flooring inside the mosque was removed and relaid with fresh stone slabs. The debris of the dislodged minarets

was cleared. Pointing of the wide open joints in the pavement was carried out. All the doors and windows of the mosque and the Motwali room were repaired and expanded metal was provided wherever necessary and painted with matching colour.

NORTHERN CIRCLE

Uttar Pradesh

98. CHAUBURJI, AGRA, DISTRICT AGRA.—The damaged portions of the outer and inner walls were underpinned with *lakhauri* bricks and the joints pointed.

99. CHINI-KA-RAUZA, AGRA, DISTRICT AGRA.—The collapsed portion of the north-western *chhatri* was reconstructed as per the original. The flaking plaster was edged and plastered wherever necessary. During the debris clearance a number of structures were exposed towards the river Yamuna, north-west of the main monument. Restoration of the collapsed south-western portion by providing stone *dasa, farandah* and brackets is in progress. A staircase was exposed while clearing the collapsed structure.

100. FIROZ KHAN'S TOMB, AGRA, DISTRICT AGRA.—The north-eastrn corner of the boundary wall was underpinned and pointed.

101. FORTIFICATION WALL (OUTER), AGRA, DISTRICT AGRA.—Thick growth of vegetation was removed and the pathway behind the embattlement was conditioned by removing debris.

102. DELHI GATE, FORT, AGRA, DISTRICT AGRA.—The bulged and dislodged stones of the gate were reset and the joints pointed.

103. DIWAN-I-AM AND JAHANGIRI MAHAL COMPLEX, FORT, AGRA, DISTRICT AGRA.—The damaged brick-on-edge flooring of the forecourt was removed and reset as per the original. The plaster on the ceiling of Diwan-i-Am and Diwan-i-Khas was restored. The work of replacing the worn out stones in the flooring of Diwan-i-Am is in progress.

104. MACHCHHI BHAWAN, FORT, AGRA, DISTRICT AGRA.—The decayed *dasa and farandah* stones were replaced by new ones.

105. MOTI MASJID, FORT, AGRA, DISTRICT AGRA.—The dislodged stones of *kangura* and parapet of the eastern gateway were dismantled and reset in their original position. Joints in the masonry of the facade of the gateway were pointed, and the missing geometrical patterns in the flooring of the landing had been replaced. The eastern *dallans* were provided with fresh lime-plaster.

106. RUM GODOWN OR SHIVAJI CELL, FORT, AGRA, DISTRICT AGRA.—Roots of trees and thick vegetation in the masonry were uprooted and the damaged portions repaired. Wide and deep joints in the pavement and the *lakhauri* brick-work were filled up.

107. GATEWAY, PUL CHANGA-MODI, AGRA, DISTRICT AGRA.—The collapsed portion of the gateway was reconstructed as per the original, and the damaged portions of the walls were underpinned. Open joints in the masonry were pointed.

108. ITBARI_ KHAN'S MOSQUE, AGRA, DISTRICT AGRA.—The collapsed portion of the boundary wall in the north-western corner was restored and the joints in the masonry were pointed.

109. ITIMAD-UD-DAULA'S TOMB, AGRA, DISTRICT AGRA.—The deteriorated inlay work on the facade of the main gateway is being restored at places with new panels of same design. The damaged portions of the boundary wall were underpinned and the *kanguras* plastered.

110. JAMI MASJID, AGRA, DISTRICT AGRA.—The work of restoring the north-western *minar,* which had crumbled a few years ago, is in progress and some facing stones were prepared to the size and lifted to the roof for being fixed in proper place. Three domes over the prayer hall are being watertightened by pointing, grouting and resetting loose white marble pieces, including replacing the missing ones. The work of reconditioning of the damaged flooring is in progress.

111. KALI MASJID, AGRA, DISTRICT AGRA.—The undermined portions of *lakhauri* brick masonry in the back wall were underpinned and open joints in the facade were pointed.

112. MUGHAL PAVILION (DOUBLE STOREYED), AGRA, DISTRICT AGRA.—Underpinning was carried out to the damaged portions of the walls and the arches of the causeway. The ceiling of the dome was plastered and the joints in the masonry were pointed. The flooring was reconditioned.

113. RAM BAGH, AGRA, DISTRICT AGRA.—The damaged portions of the boundary wall on the east and north were underpinned and the joints in the masonry were pointed. The decayed plaster below the main pavilion and the wall of the western causeway was removed and replastered.

114. SAHELION-KA-GUMBAD, AGRA, DISTRICT AGRA.—The marble stones of the bulged portion of the dome of the south-east *Gumbad were* dismantled and reset as per the original and the joints were pointed. The deteriorated stones of the flooring of the verandah around the tomb were replaced by fresh ones.

115. TAJ MAHAL, AGRA, DISTRICT AGRA.—The bulged veneering stones of the western side of the gateway in the forecourt were dismantled and reset in position after changing the damaged ones. Open joints in the masonry were pointed. Open joints in the marble stones of the main dome were pointed. The missing inlay pieces of semi-precious stones were replaced in the panels on the outer facade of the main mausoleum. The decayed moulded plaster on the ceiling, arches and walls of the underground cells was removed and replastered matching the original. Fresh lime-concrete flooring was provided to the rooms, galleries, etc.

The decayed and broken flooring stones of geometrical pattern were taken out and reset with new ones, matching the original. Sunken flooring and *dasa* stones near the western side of the *Naubat-khana* were removed and reset and open joints duly pointed.

116. TOMB OF SADI& KHAN SALABAT KHAN, AGRA, DISTRICT AGRA.—The decayed plaster of the ceiling of the dome was removed and replastered. Underpinning was carried out to the undermined portions of the platform and corner *chhatris.* The work of replacing the decayed lime-concrete of the roof terrace and flooring with fresh lime-concrete is in progress.

117. DIWAN-I-KHAS, FATEHPUR SIKRI, DISTRICT AGRA.—The work of replacing the worn

out and deteriorated stones of the flooring of geometrical pattern with new stones as per the original, is in progress.

118. HAMMAM, FATEHPUR SIKRI, DISTRICT AGRA.—The debris around and inside the *Hammatm,* south of Buland Darwaza, was removed and the doors were provided to the monument. Undermined masonry was restored and joints pointed.

119. JODH BAI'S PALACE-COMPLEX, FATEHPUR SIKRI, DISTRICT AGRA.—The deteriorated lime-concrete flooring in front of the palace courtyard was replaced by flag-stone flooring as per the original. The work of restoring the stone railing, originally serving as *purdah* wall is in progress.

120. LANGAR KHANA, FATEHPUR SIKRI, DISTRICT AGRA.—Pulverized concrete of the roof was removed and relaid with fresh concrete. Missing *chhajja* stones were replaced and the loose masonry of the arches were reset.

121. AKBAR'S TOMB, SIKANDRA, DISTRICT AGRA.—The missing inlay pieces in the main entrance gateway were replaced. The work of replacing the decayed lime-concrete of the terrace of the main gateway, first, second and third floors with fresh lime-concrete is in progress.

122. MARIAM'S TOMB, SIKANDRA, DISTRICT AGRA.—The decayed lime-plaster on the walls of the chambers was removed and thereafter replastered and colour-washed. The central chamber was provided with fresh lime-concrete flooring.

123. GROUP OF ANCIENT TEMPLES, BAIJNATH, DISTRICT ALMORA.—The wooden purlins and ridge pole of the *Bhojsala* were replaced and finished with old galvanized sheet. Stone pavement in the east of Parvati temple was repaired and the entire area was levelled.

124. BADRINATH TEMPLE, DWARAHAT, DISTRICT ALMORA.—The western wall in the temple premises, which had fallen due to heavy rains, was restored.

125. EXCAVATED SITE AT AHICHCHHATRA, RAMNAGAR, DISTRICT BAREILLY.—Undermined portions of the brick masonry in Site II were underpinned and the joints were pointed. Vegeta tion growth in the area were removed.

126. TOMB OF NAWAB NAJIB-UD-DAULA, NAJIBABAD, DISTRICT BIJNOR.—Replacing of decayed wood work, laying of fresh concrete and plastering in the rooms and removal of vegeta tion growth, etc., were taken up.

127. TOMB OF IMADUL MULK, BUDAUN, DISTRICT BUDAUN.—Trees and vegetation growth over the monument were uprooted.

128. RUDARNATH TEMPLE, GOPESHWAR, CHAMOLI.—Wooden canopy over the *sikhara* of the temple, damaged due to heavy storm, was restored by changing decayed members and missing copper sheets. The sunken flooring in front of the temple was conditioned.

129. BENI KHANAM'S TOMB, FAIZABAD, DISTRICT FAIZABAD.—The work of concreting, plastering, etc., wherever necessary, is in progress.

130. RAJA GANGA DHAR-KI-CHHATRI, JHANSI, DISTRICT JHANSI.—The decayed concrete

of the roof of *chhatri* and its flooring was replaced by fresh concrete, and missing *dasa* stones and damaged stones of the flooring were replaced. The approach pathways were conditioned. The gate of the compound wall was suitably repaired.

131. RANI LAKSHMI BAI PALACE, JHANSI, DISTRICT JHANSI.—The flooring of the gallery was laid with new flag-stones. The decayed wood work in the ceiling of the northern facade of the first floor was replaced with new ones and doors were provided with brass-headed nails in place of missing ones.

132. ANCIENT BRICK TEMPLE, BHITARGAON, DISTRICT KANPUR.—The work of fencing the area is in progress.

133. GUPTA TEMPLE, DEOGARH, DISTRICT LALITPUR.—Two gates were provided in the compound wall and the joints in its masonry were pointed.

134. FORT, TALBEGAT, DISTRICT LALITPUR.—The decayed concrete of the flooring of Nar Singh temple was removed and relaid with fresh concrete. Steps were provided with new stones. Missing and damaged *kanguras* were replaced. Undermined portion of the southern wall was underpinned.

135. IMAMBARA OF ASAFUDDAULA, LUCKNOW, DISTRICT LUCKNOW.—The moulded and carved plaster of the western *dallans* of the first storey of the main entrance gateway and of the verandah in the south-west comer of the forecourt was attended to. The damaged lime-concrete of the eastern and western *dallans* of the first gateway was removed and relaid with fresh lime-concrete.

136. NADAN MAHAL, LUCKNOW, DISTRICT LUCKNOW.—The joints in the *lakhauri* brick work of the monument were pointed and the roof watertightened. The outer fagade of the ground chamber was plastered.

137. RESIDENCY BUILDING, LUCKNOW, DISTRICT LUCKNOW.—The damaged plaster of the wall and ceiling of the Model Room was removed and replastered and the interior distempered and painted, besides attending to other works, including plastering, edging, pointing, under pinning and removal of the vegetation growth.

138. RUMI DARWAZA, LUCKNOW, DISTRICT LUCKNOW.—The collapsed north-western corner tower of the main gate was restored as per the original. The damaged plaster of the cells and *dallans* in the first storey was removed and replastered after strengthening the brick work. The work of restoring the south-west corner is in progress.

139. TOMB OF MUSHIRZADI, LUCKNOW, DISTRICT LUCKNOW.—The work of renewing the damaged plaster on the walls of the ground and first floors is in progress.

140. TOMB OF SAADAT ALI KHAN, LUCKNOW, DISTRICT LUCKNOW.—The richly-carved and moulded plaster work in the facade, arches and pillars in the ground floor and first storey-was repaired as per the original. The damaged plaster of the miniature domes, kiosks, top of parapet, etc., was renewed. The work of replacing the decayed lime-concrete of the roof of the first floor with fresh lime-concrete is in progress.

Rajasthan

141. FORT, BHARATPUR, DISTRICT BHARATPUR.—The undermined patches of rubble stone masonry on the outer face of the fort wall were underpinned and the joints in the masonry were pointed. Vegetation growth on the fortification wall were removed.

142. DIG PALACES, DIG, DISTRICT BHARATPUR.—The area in front of the main gate was enclosed by a compound-wall for laying a garden. The work of changing of bed stones of the overhead tank and of replacing the damaged plaster of the walls and ceilings of the ground storey is in progress.

NORTH-WESTERN CIRCLE

Delhi

143. JAMI-MASJID, DELHI.—Facing stones of the ceiling of the central arch of the main chamber were replaced.

144. KOTLA FIROZ SHAH, DELHI.—Roof and flooring of the *baoli* were repaired and its walls were replastered.

145. QUDSIYA MOSQUE, DELHI.—Fallen masonry was restored and loose joints in the extant masonry were pointed. Cracks in the dome were plugged and surface replastered. The work of reconstructing the boundary wall is in progress.

146. DIWAN-I-AM, RED FORT, DELHI.—The flooring was laid with new red sandstone dressed slabs over a bedding of mortar. Minor cracks in the walls were grouted and decayed stone-slabs were replaced by new ones and thereafter pointed.

147. NAUBAT KHANA, RED FORT, DELHI.—The roof was laid with fresh reinforced cement concrete and the flooring was laid with red sandstone slabs. Walls of the monument were replastered.

148. SAW AN BHADON, RED FORT, DELHI.—Loose *chhajja* stones were set in position after dowelling. The dead concrete was replaced and the masonry of the parapet was reconstructed and plastered.

149. RUINS OF ZAFAR MAHAL, DELHI.—The roof was concreted with lime-cement concrete and the walls were replastered. Worn-out battons of the ceiling and decayed false ceiling along with wood work, insulation board containing paintings were replaced with new ones.

150. TRIPOLIA GATE, DELHI.—The work of repairing the brick masonry work and pointing the open joints in the masonry is in progress.

151. ADAM KHAN'S TOMB, NEW DELHI.—Loose joints of the masonry were pointed and the walls were replastered.

152. ARAB-SARAI, NEW DELHI.—In continuation of the last year's work *{1974-75,* p. 98), restoration of the eastern gate and pointing of open joints in the masonry with lime-cement mortar were carried out.

153. BEGAMPURI-MASJID, NEW DELHI.—Dangerously overhanging loose portions of the arches of the mosque were propped up and strutted.

154. HUMAYUN'S TOMB, NEW DELHI.—Red *bajri* was spread over pathways and causeways. The work of restoring of fallen masonry and pointing the open joints in the extant masonry is in progress.

155. JANTAR MANTAR, NEW DELHI.—The pathways were paved with red sandstone slabs and the flooring of *Mishra Yantra* was repaired.

156. KHIRKI MOSQJJE, NEW DELHI.—Open joints in the masonry were pointed and the walls were plastered.

157. KUSHAK MAHAL, NEW DELHI.—The damaged rubble stone masonry was restored and joints in the extant masonry were pointed. Railing was provided around the monument.

158. MAKHDUM SAHIB'S MOSQUE, NEW DELHI.—Debris around the monument was cleared.

159. NAJAF KHAN'S TOMB, NEW DELHI.—Loose joints in the extant masonry were pointed and a boundary wall of rubble masonry was raised.

160. PURANA QILA, NEW DELHI.—Fallen portion of the fortification-wall was restored and the excavated trenches within the fort were preserved.

161. QUTAB MINAR, NEW DELHI.—The decayed and bulged red sandstone veneers were removed and reset with new ones as per the original.

162. SAFDARJANG'S TOMB, NEW DELHI.—-The eastern cells were plastered and joints in the brick masonry were pointed.

163. SHISH-GUMBAD, NEW DELHI.—The protected area around the monument was enclosed by a rubble masonry wall and the cracks in the ceiling were plugged. Open joints in the walls were pointed.

164. TOHFEWALA-GUMBAD, NEW DELHI.—The buried boundary wall was exposed and was raised to the desired height. The work of structural repairs to the monument is in progress.

165. UGRASEN-KI-BAOLI, NEW DELHI.—The fallen rubble masonry was restored. The work of pointing the open joints in the extant masonry wall is in progress.

Haryana

166. SURAJ-KUND NEAR TUGHLUQABAD, DISTRICT GURGAON.—The disintegrated concrete of different terraces of the tank was removed and relaid with fresh lime-cement concrete masonry.

167. SHEIKH CHILLI'S TOMB, THANESAR, DISTRICT KARNAL.—Roof of the tomb was water-tightened. Undermined masonry was underpinned and the walls were plastered. Causeways were laid around the monument.

Himachal Pradesh

168. LAKHNA DEVI TEMPLE, BHARMAUR, DISTRICT CHAMBA.—The damaged stone platform facing the temple was restored.

169. HARI RAI'S TEMPLE, CHAMBA, DISTRICT CHAMBA.—The existing enclosure wall around the temple was reconstructed and the damaged portions of the walls were repaired.

170. FORT, KANGRA, DISTRICT KANGRA.—The damaged portions of the boundary wall of rubble masonry around the graveyard were dismantled and rebuilt with new stones matching the original.

171. BUDDHIST MONASTERIES, TABO, DISTRICT LAHUL AND SPITI.—Roofs of the *gumphas,* cracked due to earthquake, were restored, and the worn-out battons were replaced by new ones. The existing mud roof was replastered and provided with alkaline sheets between the layers of plaster to check the percolation of water inside the shrines. The cracked and bulged portions of the walls were reset and the flooring was plastered.

Rajasthan

172. DIG PALACES, DIG, DISTRICT BHARATPUR.—Wide open joints in the flooring facing the palaces were pointed. Soot encrustation on the face of the walls was chemically cleaned and the original marble facing exposed. The overhead tank was reconcreted after removing the dead concrete. All doors and windows were painted and the *jali* work on the doors was renovated and painted in enamel paint. Patch-plastering on the walls was also carried out.

SOUTHERN CIRCLE

Kerala

173. FORT ST. ANGELO, CANNANORE, DISTRICT CANNANORE.—Fallen portion of the western arm of the fort wall was restored in conformity with the original, by using original laterite stones, recovered while clearing the debris.

A portion of the fort wall on the eastern Mapla Bay side, affected by the scouring action of the sea waves, was dismantled and underpinned.

Bathroom and toilet facilities were provided to the visitors inside the fort.

174. BEKAL FORT, PALLIKERE, DISTRICT CANNANORE.—The base portion of the south eastern corner bastion, projecting into the sea, affected by the scouring and erosional activity of the sea waves, was dismantled and restored in random rubble set in cement mortar over a base cushion of cement concrete.

Loose and damaged portions of the battlements over the above bastion were dismantled and restored with similar laterite stone in conformity with the original. Loose joints in the masonry were pointed and rendered watertight after raking out the dead mortar.

Sunken and damaged stone pavement on the north-eastern corner bastion of the outer wall was removed and reset to proper slope, using old and new stones.

Bulged portions of the veneer of the inner face of the outer wall, sunken portions of the paved top of the wall, and the damaged flight of steps, providing access to the top of the wall, were carefully dismantled and restored using old and new laterite stones in combination mortar to match with the original.

Dead concrete of the terrace of the roof of the Magazine building inside the fort was removed and relaid with fresh concrete to render the roof watertight.

175. MATTANCHERRY PALACE, COCHIN, DISTRICT ERNAKULAM.—With a view to protecting the walls carrying paintings from capillary action, the entire length of the exterior walls was

inserted with a layer of cut granite slabs at the base from either side so as to cover the thickness of the wall, by cutting the soft and porous laterite core of the wall to required size in sections with gaps in between to avoid any damage to wall.

The damaged flooring of the chamber in the ground floor below the Coronation Hall and the chamber below the portion housing the Conservation Assistant's Office, were relaid with fresh layer of concrete after removing the dead concrete. The wooden ceiling of the Coronation Hall was provided with a coat of colourless wood preservative.

Exterior surface of the walls of the palace was provided with a snowcem coat of ivory colour to match with the old. The door and window-frames and shutters were painted with fresh coats of silver grey paint after scraping and removing the cracked and flaking old paint.

176. ST. FRANCIS CHURCH, COCHIN, DISTRICT ERNAKULAM.—Leaking tiled roof of the aisles of the Church was dismantled and reset after replacing the broken tiles with the new ones. The tiles were set in combination mortar in order to prevent percolation of rain water into the core of the walls.

Decayed and damaged wooden frames and shutters of the doors and windows of the Church were replaced by new ones of teak-wood and all the frames and shutters were painted in suitable colour over a primary coat.

177. FORT, PALGHAT, DISTRICT PALGHAT.—Decayed portions of the brick masonry of the eastern and southern walls of the fort were dismantled and underpinned in conformity with the original. Vegetation growth on the fortification was removed and the damaged masonry repaired. Top of the fort wall on the northern and western sides was rendered watertight. Decayed plaster on the exterior face of the fort wall on the north-eastern side was removed and the whole wall surface was replastered with combination mortar. Similarly, the inner surface of the southern wall and part of the eastern wall was plastered with combination mortar.

178. ROCK-CUT CAVE, VIZHINJAM, DISTRICT TRIVANDRUM.—Pot-holes and ditches in the frontage of the cave were filled up. The surrounding area was levelled, spread with gravel and provided with proper slope to drain off storm water.

Pondicherry

179. MOOLANATHASWAMY TEMPLE, BAHOUR, DISTRICT PONDICHERRY.—Decayed wooden joists of the entrance porch were replaced by new teak-wood ones. Accretionary cross-walls in the *maha-mandapa* were removed, and original features exposed. A portion of the *mandapa* was provided with iron-grill screens with locking arrangement to house the loose bronze images.

Tamil Nadu

180. KAILASANATHA TEMPLE, KANCHIPURAM, DISTRICT CHINGLEPUT.—Accretionary thick lime-plaster over the southern face of the *vimana* was carefully removed and original sculptures and other features were exposed (pl. LXXVII). Wide joints and voids in the masonry were grouted and recess pointed in combination mortar. The work is in progress.

181. VAIKUNTHAPERUMAL TEMPLE, KANCHIPURAM, DISTRICT CHINGLEPUT.—A portion of the brick *prakara* wall of the temple on the north-eastern corner, fallen due to the cyclonic storm, was rebuilt in conformity with the original. A grill gate with locking arrangement was provided to the entrance in the north-eastern *prakara* wall, leading to the temple tank.

182. FIVE RATHAS, MAHABALIPURAM, DISTRICT CHINGLEPUT.—Sunken court around the *rathas* was extended towards north and its sides were provided with dry pitching in R. S. masonry.

183. SHORE TEMPLE, MAHABALIPURAM, DISTRICT CHINGLEPUT.—Wide joints in the *prakara* wall on the east of the temple were raked out and washed thoroughly to remove the saline affected mortar and the resultant gaps were filled with combination mortar and the surface finished in conformity with the surrounding.

184. BLOCK XXXVI, OLD OFFICER'S MESS, FORT ST. GEORGE, MADRAS, DISTRICT MADRAS.—Damaged flooring of the galleries in the ground floor was removed and new mosaic flooring was laid matching with the original in colour.

185. CLIVE'S BUILDING, FORT ST. GEORGE, MADRAS, DISTRICT MADRAS.—Wooden joists, beams, doors and windows in the first floor of the south wing and ground floor of the west wing were painted with suitable colour in order to protect them from the effect of dampness and salinity.

The damaged shutters of the clerestory on the top floor were replaced with new ones and the terrace of the roof was rendered watertight by providing fresh lime-concrete. The apron on the western side of the building was also repaired.

Dead plaster on the walls of the cells in the ground floor was removed and replastered after underpinning wherever necessary. Damaged flooring of the cells was removed and relaid with fresh concrete. Dead and saline affected plaster on the walls of the portion serving as main office was removed and replastered. The damaged sun-shades were replaced with new ones. Terrace of the roof of the portion, serving as passage to the stores and the adjoining area, was rendered watertight.

186. MASJID AND TWO PONDS, ARGOT, DISTRICT NORTH ARGOT.—The walls of the monu ment were given a colour wash of suitable colour. Protected area around the monument was fenced with barbed wire, and the area immediately surrounding the mosque was sectioned, levelled and kept tidy.

187. SOMANATHA TEMPLE, MELPADI, DISTRICT NORTH ARCOT.—Gaping joints in the stone masonry of the *vimana* were filled up and pointed. Sky-light were provided to the monument and the doors, window-frames and grill work were repainted.

188. CHANDRAMAULISVARA TEMPLE, NATTERY, DISTRICT NORTH ARCOT.—Protected area around the monument was fenced with barbed wire.

189. JAIN TEMPLE, TIRUMALAI, DISTRICT NORTH ARCOT.—Area on the southern side of the temple was fenced with barbed wire.

190. FORT, VELLORE, DISTRICT NORTH ARCOT.—Top of a portion of the northern rampart wall was rendered watertight by laying brick-jelly concrete. Barbed wire fencing with gate and locking arrangement was provided to the area on the south-eastern side.

191. JALAKANTESVARA TEMPLE, FORT, VELLORE, DISTRICT NORTH ARCOT.—Openings in the *madapalli* other than the door were provided with expanded metal screens fixed to wooden frames to prevent bats from entering the interior.

192. OLD MOSQUE, FORT, VELLORE, DISTRICT NORTH ARCOT.—Worn-out and dead plaster on the walls of the mosque was removed and replastered and colour-washed with suitable colour. All the doors and windows were painted, and the protected area around the monument was fenced with barbed wire.

193. MUGHUKUNDESVARA TEMPLE, KODUMBALUR, DISTRICT PUDUKKOTTAI.—Fallen portion of the eastern *prakara* was reconstructed up to a height of about 1-0 m. The original entrance with the sill was traced out in the clearance work and the same secured in proper position. Open area inside the *prakara* was sectioned and levelled to ensure proper drainage of storm water.

194. MOOVAR KOIL, KODUMBALUR, DISTRIGT PUDUKKOTTAI.—The work of grouting the cracks and voids in the stone masonry of this group of temples was continued.

195. SRI SIKHAGIRISVARA TEMPLE, KUDUMIAMALAI, DISTRICT PUDUKKOTTAI.—Debris of the breached outer *prakara* wall was removed and a part of the breached wall on the south western corner was restored to a height of 1-5 m, using many veneer stones salvaged in the clearance work. Accumulated debris in the open courtyard on the north-western part adjacent to the hundred-pillared *mandapa* in the outer *prakara* was removed, and the area levelled and sectioned to ensure drainage of storm water through the old drain which was incidentally traced and made to function. A number of loose sculptures, recovered while clearing the debris, were fixed in their original position while some of the loose architectural members were stacked for reuse. Accretionary brick walls, inside the *kalyana-mandapa* were removed, and the broken beams of the *mandapa,* where the supporting pillars were found to be sinking, were propped up with masonry supports.

196. VIJAYALAYA-CHOLESVARA TEMPLE, NARTHAMALAI, DISTRICT PUDUKKOTTAI.—The work of clearing the debris in front of the main temple was completed. Drainage was improved, and the flight of steps of stone masonry, leading to the temple, was suitably repaired.

197. THIRUPPERUMANDAR TEMPLE (MADATHUKKOIL), NANGUPATTI, DISTRICT PUDU KKOTTAI.—Loose sculptures, lying around the monument, were collected and the work of fixing them on pedestals is in progress.

198. CHOLESVARA (RAJENDRACHOLISVARA) TEMPLE, PONNAMARAVATHI, DISTRICT PUDUKKOTTAI.—Buried portion of the *adhishtana,* with inscriptions of the main shrine, was exposed and the *prakara* courtyard was properly sectioned and levelled to ensure proper drainage of storm water.

199. ROCK-CUT CAVE, SITTANNAVASAL, DISTRICT PUDUKKOTTAI.—Height of the front terrace was reduced to provide a clearer view of the frontage of the temple. The retaining wall and the steps were properly reconstructed after removing accretionary walls.

200. NARASIMHASVAMI TEMPLE, NAMAKKAL, DISTRICT SALEM.—Damaged stucco figures of the *vimana* of the Amman shrine were strengthened and secured by filleting and modelling,

201. VENKATARAMANA TEMPLE, GINGEE FORT, GINGEE, DISTRICT SOUTH ARCOT.—Debris in the open *prakara* and the cloister *mandapa* of the inner *prakara* was removed and the original

outlets running through the *prakara* on either side of the *gopura* entrance were exposed. Flooring was relaid with bricks over a bed of concrete, providing proper slope for rendering the outlets functioning. Two broken *dvarapala* images and many architectural members, recovered from the debris, were stacked properly for reuse.

202. RANGANATHA TEMPLE, KRISHNAGIRI FORT, GINGEE, DISTRICT SOUTH ARCOT.—- Accretionary brick walls inside the pillared *mandapa* in front of the shrine were removed. Leaking roof of the *mandapa* was rendered watertight and the flooring was reconditioned. Steps leading to the top of the Krishnagiri hill were reset wherever necessary.

203. GRANARY, RAJAGIRI FORT, GINGEE, DISTRICT SOUTH ARCOT.—Flooring was laid with stone-jelly concrete and the leaning vaulted ceiling was rendered watertight.

204. KALYANA-MANDAPA, RAJAGIRI FORT, GINGEE, DISTRICT SOUTH ARCOT.—-Brick masonry of the pyramidal *chhatri* or kiosk on the top floor of the *kalyana-mandapa* was underpinned and plastered with combination mortar to match with the original after removing the dead plaster.

205. MANDAPAS, CITADEL, RAJAGIRI FORT, GINGEE, DISTRICT SOUTH ARCOT.—Roofs of the two dilapidated *mandapas* were watertightened with a view to reconditioning them for the display of the loose sculptures collected from within the fort.

Clearance work of a limited nature was taken up near the horse stables for exposing the ancient structural complex.

206. TALAGIRISVARA TEMPLE, PANAMALAI, DISTRICT SOUTH ARCOT.—Accretionary brick walls were removed to expose the portions of the Pallava inscriptions on the plinth and part of the main *vimana.* Portion of the *mandapa,* housing the bronzes, was provided with grill work fixed to wooden frames with locking arrangement. Several accretionary walls in the open pillared *mandapa* were removed. Iron railings were fixed on either side of the rock-cut flight of steps, leading to the top of the hill. Masonry flight of steps on the upper half were repaired. A new approach road, connecting the main bus route with the foot of the hill, was laid.

207. NITHISVARASVAMI TEMPLE, SRIMUSHNAM, DISTRICT SOUTH ARCOT.—Accretionary brick cross-walls were removed. The flooring which was sunken and infested with rank vegeta tion was removed and relaid after removing vegetation, and the drain was improved to avoid stagnation of storm water.

208. AIRAVATESVARA TEMPLE, DARASURAM, DISTRICT THANJAVUR.—Flooring of the northern cloister *mandapa* was relaid with brick-jelly concrete after removing the debris. Accretionary brick walls and the debris in between pillars of the south-eastern part of the cloister *mandapa* were removed and the flooring was relaid with brick-jelly concrete, finishing with a neat floating coat of combination mortar. Roof of the *mandapas,* on either side of the *gopura* and on the north, was rendered watertight after resetting the disturbed ceiling slabs in position.

Brick parapet wall of the Rajagambhira *mandapa* was underpinned wherever necessary. Niches housing stucco figures along the edge of the roof were rendered watertight and the stucco figures were strengthened by filleting, mending and modelling.

The works executed in the dilapidated cloistered Nataraja *mandapa* (pl. LXXVIII) include: (i) removal and resetting of the damaged flooring, using old stones; (ii) packing, filling and pointing the joints and the voids in the masonry walls and watertightening of the roof; (iii) removing of the moss and lichen accretions over the walls, pillars and ceilings and exposing the paintings on the ceiling in front of the Nataraja shrine; (iv) providing and fixing grill screens over a low parapet wall to enclose the *mandapa;* and (v) collecting and arranging, on suitably designed pedestals, all the loose sculptures of the temple in the form of a display gallery with showcases displaying slides of the *Periyapurana* stories depicted in miniature relief with due identification and labelling.

209. BRIHADISVARA TEMPLE, THANJAVUR, DISTRICT THANJAVUR.—Accretionary brick walls with pillars obstructing the approach road in front of the Maratha gate were removed and the frontage rendered neat and tidy. Approach road from the Maratha gate to Keralantakan *gopura* and extended courts on either side between the *gopuras* were laid with cement concrete. Inner openings of the Keralantakan *gopura* were fitted with welded mesh screens fixed to teak-wood frames.

Area between the *madapalli* and the Varahi shrine, within the inner *prakara,* was laid with green turf after removing wild vegetation growth. Sunken and damaged flooring of the area between Chandesa shrine and Amman shrine in the northern side of the courtyard was removed and the work of turfing the area is in progress. Pipe-lines for the water supply to maintain the turf were laid between the Keralantakan *gopura* and turfed area.

Damaged brick flooring around the Chandesa shrine and a strip on the western block of the Amman shrine were removed and relaid with new bricks. A stone apron was provided along the base of the *ardha-mandapa* of the main temple-complex.

Broken and damaged portions of the lintels, door-jambs, pillars and sills of the sub-shrines and the cloister *mandapa of the prakara* were repaired wherever necessary and the surface in each case finished with a suitable colour and texture to match the original.

210. BRIHADISVARA TEMPLE, GANGAIKONDACHOLAPURAM, DISTRICT TIRUCHCHIRAPALLI.—The uneven flooring of the Thyagaraja *mandapa,* inside the pillared hall of the main temple, was removed and relaid and the *mandapa* was enclosed with grill-screen on dwarf wall with locking arrangement for housing the Chola bronzes. The Nataraja shrine was also provided with a grill screen. The fallen plinth stones of the cloister *mandapa* in the north-eastern corner of the *prakara* were restored to the original place.

211. SRI ERUMBESVARA TEMPLE, TIRUVERUMBUR, DISTRICT TIRUCHCHIRAPALLI.—The collapsed portion of the retaining wall, supporting the flight of steps in front of the temple, was underpinned. Uneven stone-paved flooring of the *prakara* of the main temple was conditioned.

212. SRI VALISVARASVAMI TEMPLE, VALIKANTAPURAM, DISTRICT TIRUCHCHIRAPALLI.—Heavily leaking roof of the *mukha-mandapa* was rendered watertight by laying brick-jelly con crete under flat tiles, after removing dead concrete.

SOUTH-EASTERN CIRCLE

Andhra Pradesh

213. EUROPEAN CEMETERY, GOOTY, DISTRICT ANANTAPUR.—Breaches in the compound wall were restored and a gate was provided. Individual cemeteries were conserved and epitaphs restored to the original positions.

214. DODDESVARA TEMPLE, HEMAVATI, DISTRIGT ANANTAPUR.—Accumulated earth around the monument was sectioned for exposing to view the basal mouldings o£ *adhishtana* of the temple. Proper drainage was provided after levelling the ground and consolidating the foundations with gravel. The random rubble compound wall was underpinned wherever necessary and the joints pointed in cement mortar.

215. SIDDESVARA TEMPLE, HEMAVATI, DISTRICT ANANTAPUR.—The ground outside the temple was levelled and the flag-stones relaid after exposing the original *adhishtana* mouldings of the sanctum. Height of the low parapet wall over the open pillared *dallan* all around was lowered. The entire courtyard of the temple was paved with granite slabs set in mortar after uniformly levelling the ground.

216. VIRABHADRASVAMI TEMPLE, LEPAKSHI, DISTRICT ANANTAPUR.—Open joints in the stone flooring, inside the pillared pavilion on the north-east, were filled and the decayed portions of the brick roof over the western *gopura andyajnasala* were dismantled and reset using old bricks.

217. ANCIENT MONUMENTS, CHANDRAGIRI, DISTRICT CHITTOOR.—Height of the compound wall on the eastern side was raised. Southern and western extents of the Rajah-Mahal complex were provided with barbed wire fencing. Ancient patterned iron doors were provided to the fence and the compound-wall.

The ancient tank in front of the Raja Mahal was desilted and the displaced and sunken stone courses were fixed in their original positions after the sides were consolidated by stone pitching set in cement mortar (pl. LXXIX).

Clearance of the earth around the Rani Mahal complex revealed the existence of *tripatta adhishtana* in cut stone having *padma-bandha* base. In the open courtyard in front, a rectangular pond having sides provided with cut stone descents and water inlets on the northern side and flooring neatly laid and plastered was exposed. Several minor structures with neatly plastered floors and consisting of small rooms at the rear side of the Mahal were also brought to light. Further clearance and consolidation of the area is in progress. Extensive patch plastering the walls and the floors, underpinning the walls wherever necessary, within the above two Mahals were also taken up.

218. PARASURAMESVARASVAMI TEMPLE, GUDIMALLAM, DISTRICT CHITTOOR.—Earthen debris on the exterior of the southern *prakara* wall was neatly sectioned and the compound wall strengthened. Electrical pole was removed from the frontage of the complex.

219. KANCHARAGUDI TEMPLE, BICCAVOLU, DISTRICT EAST GODAVARI.—Low-lying area around the temple was raised by gravel-filling, and levelling was done to drain off the rain water accumulating near the basement. Disturbed stone of the flooring within the sanctum were reset and the voids between the mouldings of the *sikhara* were grouted with cement and water-tightened.

220. NAKKALAGUDI TEMPLE, BICCAVOLU, DISTRICT EAST GODAVARI.—Low lying area all round the temple was filled with gravel and the floor slabs in the sanctum were set in position and pointed.

221. VIRABHADRASVAMI TEMPLE, BICCAVOLU, DISTRICT EAST GODAVARI.—A concealed drain with R. C. C. pipes was laid to the western side of the temple to let out the irrigation channel without affecting the foundation. The sanctum flooring was conditioned, and the dislodged stone mouldings of the *sikhara* were reset and watertightened.

222. BHAVANARAYANASVAMI TEMPLE, BAPATLA, DISTRICT GUNTUR.—Damaged roof-shell over the *ardha-mandapa* and *maha-mandapa* was removed and relaid uniformly with provision for drainage. *Sikhara* details were exposed after carefully removing the plaster coats over the stone mouldings. Stone *stupis* over the *haras* of each *tala* were reset in their proper positions.

223. RECONSTRUCTED MONUMENTS, NAGARJUNAKONDA, DISTRICT GUNTUR.—Approach pathways were laid to the stadium and university sites. Levelling work was carried out after filling the pits close to the barbed wire fencing.

224. GHARMINAR, HYDERABAD, DISTRICT HYDERABAD.—In continuation of the last year's work *(1974-75,* pp. 106-107), fine stucco floral motifs were restored and ornamental designs were renovated in conformity with the original in the mosque. Similarly, the ornamental stucco motifs were restored over the intrados of the central dome- of the Charminar. Saline affected portions of the plaster were raked out and freshly plastered with special mortar. Painting work was done to the iron fencing. Patterned doors were provided to the four openings at the ground floor of the *minars.* A chain barricade with pillars was provided to regulate the visiting public.

225. GOLCONDA FORT, HYDERABAD, DISTRICT HYDERABAD.—Large-scale consolidation work of the standing roofless walls of the upper storey in the dancing hall complex, within Rani Mahal was taken up. Voids in the walls were grouted and the tops rendered watertight after pointing in cement lime-mortar. Similarly, wide joints in the stone masonry in the ceilings of the Rani Mahal were filled and watertightened by refixing the stones in mortar. Extensive pointing work was undertaken at various places. Damaged flooring of the Baradari was relaid. Decayed plaster on the parapet wall was raked off and freshly plastered. Debris in front and within the cells of the Silaikhana complex was cleared, exposing the original floor levels. Similarly, clearance work was undertaken on the rear side of Silaikhana, south of Taramati mosque, and also in the close vicinity of the Akkanna-Madanna offices at the Nagar Khana complex, all within the Balahissar (inner fort).

226. BUDDHIST REMAINS, ALLURU, DISTRICT KRISHNA.—Barbed wire fencing was provided around the protected area.

227. DUTCH CEMETERY, MASULIPATNAM, DISTRICT KRISHNA.—Compound wall around the protected area was strengthened after underpinning wherever necessary and the wall tops were provided with coping. Iron gate was fixed at the entrance. Individual epitaphs were reset in their original positions on low masonry platforms.

228. ABDUL WAHAB KHAN'S TOMB, KURNOOL, DISTRICT KURNOOL.—Damaged shell of the extrodos of the western dome was relaid after grouting the cracks and filling the cavities in the masonry and coated with snowcem of matching colour. Iron-framed shutters were fixed to the arched openings at the southern and eastern sides to secure the monument and check trespassing. Damaged portions of the ornamental stucco work over the battlements and minaretes and at the springing of the dome were restored in toned special mortar.

229. KONDA REDDY BURZ, KURNOOL, DISTRICT KURNOOL.—Damaged portions of the stone and brick masonry of the arches were restored and extensive plastering and pointing work was carried out after filling the voids. Railed barricades were provided at the top parapet to regulate the public. Flag-post was reset in position after patch plastering and colouring it in conformity with the original.

230. UMAMAHESVARA TEMPLE, YAGANTI, DISTRICT KURNOOL.—Brick-jelly concrete was relaid over stone *mandapa* after resetting the pillars and replacing the broken roof slabs. The damaged stone flooring was relaid with fresh slabs wherever necessary. Teak wood temple-type door was fixed to the main entrance of the sanctum.

231. KALYANA-MANDAPA, UDAYAGIRI, DISTRICT NELLORE.—Broken and displaced stone slabs in the *kalyana-mandapa* were replaced by new ones and set in position and pointed. The height of the compound-wall was raised.

232. PITIKESVARASVAMI TEMPLE, PITIKAYAGULLA, DISTRICT PRAKASAM.—Barbed wire fencing with an iron gate was provided around the temple-complex.

233. RAMALINGESVARA TEMPLE, SATYAVOLU, DISTRICT PRAKASAM.—Limestone *(Taki)* stone compound wall around the temple was underpinned and the height was raised. An iron gate was provided to the main entrance.

234. BUDDHIST REMAINS, SANKARAM, DISTRICT VISHAKHAPATNAM.—Extensive protected area around Bojjana and Lingalakonda was fenced with barbed wire after the area was cleared of encroachments. Stone steps leading to the remains on the hillock were restored.

235. THOUSAND PILLARED TEMPLE, HANUMAKONDA, DISTRICT WARANGAL.—Flat tiled roofing was replastered and watertightened. Extra openings on the eastern and southern sides of the compound wall were closed and the height of" the wall raised to 1-50 m to secure the monument and its sculptural wealth and also to check trespassing.

236. ANCIENT MONUMENTS, FORT, WARANGAL, DISTRICT WARANGAL.—Barbed wire fencing on angle-iron posts with iron gates at the entrances was provided to Rama temple, Jangamayya temple and Sitabkhan's Mahal, with a view to securing the individual monument and to safe guarding the sculptural wealth. Pictorial guide map, prepared to the scale, was provided at Svayambhu temple.

SOUTH-WESTERN CIRCLE

Goa

237. AGUADA FORT, CANDOLIM, GOA.—Repairs to the breaches in the fortification-wall were taken up on a large-scale. The foundations of the bastions were strengthened at the time of low tide in the sea by using quick setting cement and the masonry was raised to a height of about 3 m.

238. LADY ROSARY CHURCH, VELHA GOA.—Decayed plaster on the inner face of the walls was removed and replastered. The damaged window frames were repaired and provided with glazed shutters. The flooring was concreted as per the original.

239. BOM-JESUS CHURCH, VELHA GOA.—Repairs to the damaged ceiling were undertaken.

240. SE' CATHEDRAL, VELHA GOA.—A drain was laid on the north-eastern side of the Church for the easy flow of rain water.

241. ST. AUGUSTINE CHURCH, VELHA GOA.—Debris around the monument was removed.

242. ST. CAJETAN CHURCH, VELHA GOA.—The walls of the Church were replastered as per the original after removing the decayed plaster.

Maharashtra

243. MAIXIKARJUNA TEMPLE, GHOTAN, DISTRICT AHMEDNAGAR.—The work of removing modern accretions around the temple was completed. Accretionary supporting pillars provided for the cracked lintels and beams were dismantled after strengthening the cracked ones with concealed girders. The roof of the temple was made watertight with cement concrete. Uneven stone paving of the *sabha-mandapa* and buldged out portion of the porch were removed and reset. The original flooring and the plinth of this temple was exposed by removing debris.

244. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—Approach road, including parapet wall from the Booking Office to the Cave 16, was repaired. The surface-drain on the top of Cave 1, which had become damaged due to rains, was also repaired. Experimental electrification in this cave is in progress. Modern construction in the facade of Cave 4 was repaired to match the adjoining rock surface. Wooden bridge near Cave 8 was replaced by a R. C. C. slab-bridge. Cavity in the facade of Cave 9 was filled in with R. C. C. and finished to match the adjoning rock surface (pl. LXXX). The narrow passage between Caves 25 and 26 was widened by cutting the side-rock and by providing a retaining wall on the valley side.

245. BIBI-KA-MAQBARA, AURANGABAD, DISTRICT AURANGABAD.—The decayed lime plaster on the walls of the entrance gate was re-done in fine plaster as per the original. The missing stone *jalies* on the exterior side openings of the first floor and fallen patches of plaster were restored. All the cracks were filled in. The copper-plated main entrance gate was cleaned. The curtain-wall of 2-m height, running from inner side of the entrance gate to the main tomb, was throughly repaired. Tops of the pillars, wherever missing, were repaired and restored as per the original.

Portions where chunks of plaster had fallen from the screen of the tomb, minaretes and adjoining mosque were replastered as per the original in fine plaster. Broken stone *jalies* of the parapet and minarets were restored. All the copper-plated doors of the tomb and pinnacles of the dome were cleaned. The work of repairing the cornices of different structures is in progress.

Chhqjja of the mosque to the west of Maqbara was repaired. The weathered and cracked veneer-stones of the raised platform in front of the mosque were repaired after necessary reinforcement. The plastered portion was chiselled to match the texture of the adjoining walls. Red sandstone *jalies* of fountains, serving as low parapet wall, were repaired and restored. The work of repairing the damaged brick masonry inside a few fountains is in progress.

Stone paved approach road, from the back of the tomb to Baradari, plastered earlier in some places, was repaired to match the original. The old underground drain was conditioned to avoid stagnation of water which otherwise would damage the foundations of the structures inside the Maqbara. Flood-lights, one each on western and eastern sides, were provided for the convenience of the visitors in the night.

246. ROCK-CUT CAVES, AURANGABAD, DISTRICT AURANGABAD.—Damaged portion in front of Caves 6 to 9, caused by heavy flow of rain water from the top of Cave 7, was repaired and the area widened by constructing a retaining wall. The flow of rain water was diverted by cutting a drain in the rock.

247. THATTE NAHAR AND HAUZ, AURANGABAD, DISTRICT AURANGVBAD.—The portion of the *nahar,* damaged by heavy flood in the waste weir of Harsul tank, was repaired in stone masonry and was cleared of silt and tree-roots. A steel grill was provided around the *hauz* in order to avoid accidents.

248. FORT, DAULATABAD, DISTRICT AURANGABAD.—Top of *Andheri* was rendered water tight by excavating, laying concrete and plastering. Weathered side walls were chiselled and plastered to match the original. Tops of enclosure walls were rendered watertight.

Stone pillars, lying in heaps in the courtyard of the temple, were reset in their original places. The work of paving the flooring of the courtyard with stones is in progress. Flooring around the Chand-Minar which was considerably damaged, was excavated, concreted and plastered.

249. GHRISHNESVARA TEMPLE, ELLORA, DISTRICT AURANGABAD.—The dilapidated stone pavement around the temple was conditioned.

250. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—Stone masonry pillars in Cave 6 were replaced by R. C. C. ones. Top of Cave 16 was rendered watertight after removing earth and by laying cement concrete and plastering. Cracks in the rock were grouted. The flow of rain water falling on the sculptures was diverted (pl. LXXXI). Stone masonry pillars in the gallery were replaced by R. C. C. ones and finished to match the original ones. Stone masonry steps were removed and new ones provided by cutting rock as per the original. Steps leading to the galleries were replaced by concrete ones.

251. ROCK-CUT CAVES, KANHERI, DISTRICT BOMBAY SUBURBAN.—The washed out cement concrete pathway from the foot of the hill to the Booking Office was repaired. The decayed and weathered portions of the partition-walls, door-jambs, etc. in Cave 35 were repaired in R. C. C. as per the original.

252. PATAN DEVI TEMPLE, PATANA, DISTRICT JALGAON.—A retaining-wall was constructed in order to prevent the erosion of earth due to floods.

253. ELEPHANTA CAVES, GHARAPURI, DISTRICT KOLABA.—A parapet-wall was constructed in front of Cave 1. Open joints in the flight of steps of approach road from *jetty* to the caves were filled up. The decayed and weathered portions of partition walls, door-jambs, etc., of Cave 4 were restored in R. C. C.

254. JIJAMATA PALACE, PACHAD, DISTRICT KOLABA.—The collapsed palace walls and gates were repaired and the cavities were filled up with cement mortar. Desilting of the well was carried out. Debris clearance of the area is in progress.

255. FORT, RAIGAD, DISTRICT KOLABA.—The original platform of *Siva-samadhi* was exposed. Rank vegetation and debris were removed and the tops of the walls were rendered watertight. Leakage in the roof of the Jagadesvara temple was stopped by laying cement concrete on the top. Cracks and cavities in the walls of the temple were filled up. The original plinth of the Bazarpeth was brought to light by clearing debris. The collapsed walls were repaired in mud masonry and their extant tops watertightened. The passage of the Nagarkhana was paved with stones.

256. KOPESHVAR MAHADEO TEMPLE, KHIDRAPUR, DISTRICT KOLHAPUR.—Roof of the temple was rendered watertight. The area around the temple was paved with stones.

_ 257. GONDESHVARA TEMPLE, SINNAR, DISTRIGT NASIK.—A lightning conductor was provided to the monument and the electrification work was completed.

258. SHIVNERI FORT, JUNNAR, DISTRICT PUNE.—Rank vegetation on the monument was removed. The work of repairing the bastions is in progress.

259. SHANWARWADA, PUNE, DISTRICT PUNE.—Pathways were repaired and concreted.

WESTERN CIRCLE

Daman and Diu

260. CHAPEL OF OUR LADY RAZARIO, MOTI DAMAN, DISTRICT DAMAN.—The decayed lime plaster on the walls was removed and fresh cement plaster with smooth finish was provided. Wood-work in the Chapel was treated with preservatives and the doors and windows were painted.

261. FORT, MOTI DAMAN, DISTRICT DAMAN.—Thick vegetation on the fort-wall was removed. Guns were fixed on random rubble masonry platforms at appropriate places.

Gujarat

262. BABA LAULI'S MOSQUE, AHMADABAD, DISTRICT AHMADABAD.—In continuation of the last year's work *[1974-75,* p. 113), the foundation in the river-bed was excavated and streng thened with cement concrete. The protection wall was raised in random rubble masonry in cement mortar with proper provision of headers, curvature of piers and a cage of iron bars. A reinforced cement concrete coping at the top of the wall was also provided for extra cohesion of the unit. It was further strengthened by a filling of earth between the protection wall and the monument and its top was rendered watertight by rubble pitching. The work was satisfactorily completed.

263. STEP-WELL, ADALAJ, DISTRICT GANDHINAGAR.—In continuation of the last year's work *(1974-75,* p. 113), removing and resetting of the cracked and broken stone slabs of roof-cum-floor at different landings was completed.

264. DWARKADHISH TEMPLE, DWARKA, DISTRICT JAMNAGAR.—In continuation of the last year's work *(1974-75,* p. 113), removing of broken and weathered stones of the southern porch of the temple and replacing with new ones, duly dressed and carved, was completed.

265. TRIVIKRAMJI TEMPLE, DWARKA, DISTRICT JAMNAGAR.—The damaged and weathered ashlar stones on the southern side of the temple up to the *jangha* were replaced with carved stones duly in conformity with the original.

266. PRADYUMANJI TEMPLE, DWARKA, DISTRICT JAMNAGAR.—The damaged and weathered stones on the southern side of the temple were replaced up to *jangha* by new ones as per the original.

267. KANKESHVAR MAHADEV TEMPLE, VASAI, DISTRICT JAMNAGAR.—Debris around the monument was removed exposing to view the ancient structures. Bulged portions of the compound wall were dismantled and restored with dressed and carved stones wherever missing.

268. BAVAMAN'S MOSQUE, CHAMPANER, DISTRICT PANCH MAHALS.—The missing stones of the western wall of the mosque were replaced. The fallen *mihrab* was reconstructed with the original material. The bulged arches were carefully dismantled and reset.

269. BHADRA GATE, CHAMPANER, DISTRICT PANCH MAHALS.—The bulged brick masonry of the octagonal bastion was removed and reconstructed as per the original. The missing brick merlons were replaced. The fallen ashlar masonry of the southern wall was repaired and rendered watertight.

270. DELHI GATE AND CITADEL, CHAMPANER, DISTRICT PANCH MAHALS.—Thick vegetation growth on and around the monument was removed. Bulged portions of the wall of Delhi gate and its tilted arches were dismantled and reset as per the original.

271. THREE CELLS, CHAMPANER, DISTRICT PANCH MAHALS.—-The bulged stones of the wall was dismantled and reconstructed by replacing the missing ones. The accumulated debris in the area was removed.

272. BARODA GATE, DABHOI, DISTRICT VADODARA.—The bulged portions of the southern fagade of the gate were dismantled and reconstructed by replacing the missing ones with new ones. Missing heavy merlons were also replaced* by new ones in conformity with the original.

273. EXCAVATED SITE, KARAVAN, DISTRICT VADODARA.—Barbed-wire fencing with a wooden gate for the entrance was provided around the site for proper maintenance.

274. TAMBEKARWADA HAVELI, VADODARA, DISTRICT VADODARA.—Sunken wooden galleries on the second and third floors were carefully dismantled and reconstructed after replacing the worn-out members with new ones as per the original. Missing wooden members such as pillars, arches, railings, doors and windows were replaced. Carved wooden brackets were repaired. Expanded metal *jali,* fitted to the openings and the damaged weather shades on the fagade, were repaired. Brick parapet on the terrace was rebuilt on the original pattern.

Rajasthan

275. SHIV TEMPLE 1, ARTHUNA, DISTRICT BANSWARA.—Out-of-plumb ashlar masonry of the dome and porches were reset to the plumb line, and the dead concrete was removed and relaid with fresh concrete to prevent water percolation.

276. GROUP OF MONUMENTS, FORT, CHITAURGARH, DISTRICT CHITAURGARH.—Repair works executed to Tripolia Gate include: resetting the out-of-plumb ashlar masonry; replacing of the broken and missing lintels; and relaying in cement mortar, after removing the uneven and sunken pavement, over a cushion of conrete.

The dislodged ashlar stones of the roof and lintels in the Badi Pole were reset to their original position and the dead concrete was removed and relaid with fresh concrete. The debris around Bhimlat tank was removed and the out-of-plumb ashlar stone masonry of the wall was

reset to plumb line. The damaged random rubble masonry of the subterranean passage of Rana Kumbha's palace was repaired.

277. FORT, RANTHAMBHOR, DISTRICT SAWAI MADHAVPUR.—A flight of steps was provided to the Gupta-Ganga, and a retaining wall was constructed to strengthen the ramps of Janwara-Banwara graneries.

278. GROUP OF MONUMENTS, FORT, KUMBHALGARH, DISTRICT UDAIPUR.—The decayed and worn-out wooden beams and planks of the ceiling of Rana Kumbha's palace were replaced by new ones and its roof relaid with fresh concrete. The damaged portion of the wall was under pinned and the joints in the masonry were pointed. The dead concrete was removed and relaid with fresh concrete in the central hall of Badal Mahal. Out-of-plumb ashlar masonry of the Jaina temples were reset to plumb line and dead concrete was removed and relaid with fresh concrete.

MONUMENTS MAINTAINED BY THE STATES

ANDHRA PRADESH

The work of conservation was carried out at the following monuments.—

1. MONS RAYMOND OBELISK OF MOOSARAMBHAGH, HYDERABAD, DISTRICT HYDERABAD.
2. QUTUB SHAHI TOMBS, GOLCONDA, DISTRICT HYDERABAD.
3. SOMESVARSVAMI TEMPLE, KULPAK, DISTRICT NALGONDA.

ASSAM

The work of clearing and conservation was carried out at the following monuments.—

4. BASUDEVA TEMPLE, KALABARI, DISTRICT DARRANG.
5. GOLAGHAT (MAGAZINE HOUSE), GARGAON PALACE, GARGAON, DISTRICT SIBSAGAR.

GUJARAT

The work of clearing and conservation was carried out at the following monuments.—

6. NAVLAKHA TEMPLE, GUMALI, DISTRICT JAMNAGAR.
7. BHUJIO KOTHO, JAMNAGAR, DISTRICT JAMNAGAR.
8. KOTHA, JODIA, DISTRICT JAMNAGAR.
9. NLLAM-TOP, JUNAGADH, DISTRICT JUNAGADH.
10. KASTURBA'S HOUSE, PORBANDAR, DISTRICT JUNAGADH.
11. SARATANJI-NO-CHORO, PORBANDAR, DISTRICT JUNAGADH.

12. VADI-MEDI, MANJAL, DISTRICT KUTCH.

13. HAVAMAHAL, MODHERA, DISTRICT MAHESANA.

14. GROUP OF MONUMENTS, KANKANPUR, DISTRICT PANCH MAHALS.

15. GROUP OF MONUMENTS, LAVANA, DISTRICT PANCH MAHALS.

16. GROUP OF MONUMENTS, SANT, DISTRICT PANCH MAHALS.

17. SANTHALESVA MAHADEVA TEMPLE, MATHASULIA, DISTRICT SABAR KANTHA.

18. TEMPLE WITH KUND, ABHAPUR, DISTRICT SABAR KANTHA.

19. JAINA TEMPLE, ABHAPUR, DISTRICT SABAR KANTHA.

20. SIVA AND JAINA TEMPLES, ABHAPUR, DISTRICT SABAR KANTHA.

21. TEN-TALAO, TENTALAO, DISTRICT VADODARA.

KERALA

Conservation works, including vegetation clearance, chemical treatment to the work, and repairs wherever necessary, were attended to at the following monuments :

22. KRISHNAPURAM PALACE, KAYAMKULAM, DISTRICT ALLEPPY.

23. NARASIMHA TEMPLE, SASTHANKULANGARA, DISTRICT ALLEPPY.

24. KAVIYOOR ROCK-CUT TEMPLE, THIRUVALLA, DISTRICT ALLEPPY.

25. FORT, TELLICHERRY, DISTRICT CANNANORE.

26. ROCK-CUT TEMPLE, KALLIL, DISTRICT ERNAKULAM.

27. ARIYANNUR TEMPLE, ARIYANNUR, DISTRICT TRICHUR.

28. CHERAMANPARAMBU, CRANGANNORE, DISTRICT TRICHUR.

29. KEEZHTHALI TEMPLE, CRANGANNORE, DISTRICT TRICHUR.

30. KOTTAPPURAM FORT, CRANGANNORE, DISTRICT TRICHUR.

31. MENHIR, KUTTUR, DISTRICT TRICHUR.

32. PALLIPURAM FORT, CRANGANNORE, DISTRICT TRICHUR.

33. NEDUMKOTTAM, CHALAKUDY, DISTRICT TRICHUR.

34. MADAVOORPARA ROCK-CUT CAVE, MADAVOORPARA, DISTRICT TRIVANDRUM.

MAHARASHTRA

35. FORT, NAGARDHAN, DISTRICT NAGPUR.—Entrance of the fort was provided with steel gates.

ORISSA

The work of clearance and conservation was carried out at the following monuments :

36. INDRALATH BRICK TEMPLE, RANIPUR JHARIAL, DISTRICT BOLANGIR.

37. SOMESWAR TEMPLE, SUKLESWAR, DISTRICT CUTTACK.

38. BHAGABATI TEMPLE, SUKLESWAR, DISTRICT CUTTACK.

39. PATALESWAR TEMPLE, BUDHIKHOMANA, DISTRICT KALAHANDI.

40. MALIKESWAR TEMPLE, PADAMPUR, DISTRICT KORAPUR.

41. SWARNAJALESWAR TEMPLE, BHUBANESWAR, DISTRICT PURI.

PUNJAB

42. AMKHAS BAGH, PATIALA, DISTRICT PATIALA.—The tank and its surrounding walls of the east and west were repaired. Small tanks and channels, exposed while clearing the debris, were repaired. Sharad Khana and *hammam* were also repaired. Paintings in the private apart ments were cleaned and preserved.

43. QILA ANDROON, PATIALA, DISTRICT PATIALA.—-Roof of the Maharaja Ranjit Singh's palace was repaired. Work in other chambers is in progress.

44. SHEESH MAHAL, PATIALA, DISTRICT PATIALA.—Repairing and chemical preservation were executed to the ceiling of the monument.

RAJASTHAN

Conservation works were carried out at the following monuments :

45. BHARMAL'S CHHATRI, AMBER, DISTRICT JAIPUR.

46. FORT AND PALACES, AMBER, DISTRICT JAIPUR.

47. CHHATRIES OF GAITORE, JAIPUR, DISTRICT JAIPUR.

48. MAHARANI'S CHHATRIES, JAIPUR, DISTRICT JAIPUR.

49. NAHARGARH FORT, JAIPUR, DISTRICT JAIPUR.

50. HAWA MAHAL, JAIPUR, DISTRICT JAIPUR.

 WEST BENGAL The work of clearance and conservation was carried out at the following monuments :

51. SIVA TEMPLE, RASA, DISTRICT BIRBHUM.
52. RADHAGOVINDA TEMPLE, JAGADANANDAPUR, DISTRICT BURDWAN.
53. DAKSHINA-KALI TEMPLE, MALANCHA, DISTRICT MIDNAPUR.

IX. EXPEDITION OUTSIDE INDIA

A. ARCHAEOLOGICAL RECONNAISSANCE IN THE FARAH REGION, AFGHANISTAN

A team of archaeologists, consisting of Shri B. K. Thapar, as leader, and Sarvashri H. Sarkar, Lakshmi Dutt, V. B. Mathadhikari, R. K. Sehgal and O. D. Dogra as members, visited Afghanistan with a view to exploring the Farah region. During the course of exploration, two sites, Kafir Qila or Kaki-Kahzad, located about 20 km south-west of the twon of Farah, and Qila Faridan (pl. LXXXII A) on the outskirts of Farah, were surveyed. Both the sites were found to have medieval fortifications, the latter containing relics of the pre-Islamic times as well.

The party also explored some areas along the Arghandab river. While examining the excavated materials from the various sites, the occurrence of the celebrated Northern Black Polished Ware was observed, albeit with significance, at Shahr-i-Kuhna, in Kandahar, a fortified settlement, supposed to have been founded by Alexander. Surface explorations revealed that the ancient fortified settlements at Shahr-i-Kuhna and Begram, were divided into two parts, corresponding to what may be called the upper and lower city. The same phenomenon was noticed at Qila-i-Bost, 8 km south of Lashkar-gah, situated on the left bank of the river Helmand, and attributed to the time of Mahmud of Ghazni. Here the citadel was found to be encircled by a moat and had thus a commanding position. Besides the glazed pottery of the tenth to the thirteenth century, a kind of ribbed ware was also obtained from the site.

The ancient site at Begram (pl.LXXXII B) was intensively surveyed with a view to finding out potential areas for laying out trenches for a regular excavation.

Mention may also be made about the identification of the Harappan pottery at Shortugai Tepe, near Ai-khanum, on the left bank of the Amu Darya, explored by the French archaeologists.

Some blades, possibly belonging to the Late Stone Age, were picked up about 35 km from Kandahar on the way to Mundigak. The site, which is devoid of pottery, is located just at the point where one has to cross the mountain range (Koh-i-Siah Sang) before coming to Mundigak.

B. PRESERVATION OF BUDDHIST SHRINES AT BAMIYAN AND A TIMURID SHRINE AT BALKH IN AFGHANISTAN

THE BIG BUDDHA AT BAMIYAN

STRUCTURAL PRESERVATION.—The Indo-Afghan joint project of the preservation work of the Big Buddha was continued during this season under the direction of Shri R. Sengupta. The construction of drains (pl. LXXXIII), at the top of rock-roof to divert snow melt water, was completed. It has thus been made possible to check (i) the disintegration of the precariously standing cliffs of the conglomerate rock and (ii) the damage to the extant paintings over the ceiling. The work of consolidating the rock-cut image of the Big Buddha was also taken up. Two wide cracks had developed across the fagade of the rock, due to an earlier earthquake and had damaged the Buddha image. In addition, vanadalism had also caused damages to the lower portion of the right leg up to the knee and up the waist level of the left leg. The portion of right leg below the crack was overhanging and threatening to collapse. The damaged chunks of rock were precariously holding to the parent body. With a view to consolidating the

overhanging broken right leg, a R. C. C. cantilever slab was cast with 25 mm mild steel bars inserted deep into the rock. Its exterior was finished with the same contours and uneveness to maintain the broken weathered look as before. The loose portions were secured by grouting with liquid cement mortar through the fissure of the lower crack and drilled holes. Other portions with minor cracks and loose portions were pinned back and stabilized.

The big gap on the right wall, caused by the fall of water from the top, was filled in with random rubble masonry and the entire surface covered with cement concrete plaster in a manner so as to simulate undulating rock surface (pl. LXXXIV). The area thus reclaimed on the top will facilitate visitors to have a good view of the Big Buddha and also to reach the caves on the top easily.

The staircase at the head of the Big Buddha was also reconditioned (pl. LXXXV).

CHEMICAL PRESERVATION.—Extensive remnants of paintings over the walls and ceiling had suffered heavy damages due to physical and chemical weathering. The pigment was loose and flaky, as also its plaster base had come off from the carrier at places. The figures (pl. LXXXVI), mostly ridden with bullet and arrow holes, and subsequently filled-in with plaster of Paris by die French Archaeological Mission, were an eye-sore to the viewer. Such white patches and portions were redone, using coloured mortar to match the surroundings. The murals were cleared of sooty and tarry matter, dust and dirt, and the flaky pigments fixed back to the carrier. The flaky plaster base was filleted with plaster of Paris and fixed to the carrier-rock. The process was followed by the application of a coat of preservative. The chemical treatment of a large area was thus completed. The extant stucco work in the shrines all round the Big Buddha was cleared of soot, dirt, dust, etc. and preserved. The broken edges were filleted (pl. LXXXVII).

Intricately-carved mouldings and figures in stucco in the cells and outside the main niche in the cliff in the cave to the left of the Buddha, obscured with thick black, shiny smoke and tar, presumably due to burning of wood, were chemically treated and exposed fully and repaired. Further, the edges of the mouldings of geometrical design, running round the walls were also repaired and strengthened with suitably tinted repair-composition.

THE SHRINE OF KHWAJA ABU NASAR PARSA AT BALKH

STRUCTURAL PRESERVATION.—The late Timurid structure, dedicated to the famous Sufi Khwaja Abu Nasar Parsa who died in *circa* 1460 A.D., though used as mosque, has now been identified as a *Hazira.* The structure constructed in brick-work, set in gypsum mortar, was in a very bad state of preservation. The two crowning members of the minaret were missing, cracks had developed at the corners, the front arch was damaged and the glazed tile work on the facade and ribbed extrados of the main dome was mostly damaged or disturbed. The cracks on the external high dome were causing anxiety about the safety of the structure. Hence urgent repair works to save the structure had to be undertaken early at the special request of the Government of Afghanistan.

As a first measure to strengthen the cracked dome (pl. LXXXVIII) three brick-arches were constructed along the intrados, to support the cracked dome. The extant glazed tile-work (pis. LXXXIX, XCI and XCVII) on the facade was secured. The broken and dislodged ends of the rear wall of the front arch were reset following the original plan (pis. XCII-XCIII) The terrace around the high cylindrical drum of the dome was made watertight by resetting the loose bricks with an outward slope to drain off rain and snow-water (pl. XCIV). The minarets which were bereft of the covering, were provided with a flat roof at a lower level using timber with mud and a layer of bricks in gypsum mixed with lime-mortar. The preservation work is in progress.

X. ARCHAEOLOGICAL CHEMISTRY

TREATMENT OF MONUMENTS AND PAINTINGS[1]

ANDHRA PRADESH

1. THOUSAND-PILLARED TEMPLE, HANAMKONDA, DISTRICT WARANGAL.—Chemical treatment and preservation of the intricately carved stone structure of this temple was taken up this year. The shrines of Siva, Vishnu and Suryanarayana and the Nandi in front of the temple which were covered with dust, dirt and soot, algal growth and deposit of lime-wash was cleaned successfully with the help of a solution of ammonia, having a little Teepol and a 5 per cent solution of acetic acid. A 3 per cent solution of methyl methacrylate in toluene was then applied as a preservative coat on the cleaned surfaces. After cleaning, the sculptures were given a polish with a waxy composition to restore the original lustre. About fifty per cent of the work has been completed in this year.

BIHAR

2. TERRACOTTA PLAQUES IN BUDDHIST STUPA, ANTICHAK, DISTRICT BHAGALPUR.—The terracotta plaques (8 x 8 cm) embedded in the periphery of the Buddhist *stupa,* amidst the excavations of Vikramsila Project, were crumbling due to salt efflorescence. The work of extraction of soluble salts with the help of paper pulp was continued. Several applications of paper pulp were found necessary to extract the salts. A preservative coat of five per cent polyvinyl acetate in toluene was applied for consolidating the friable plaques and to prevent further flaking.

DELHI

3. MARBLE STRUCTURE AND SCREEN, RANG-MAHAL, RED FORT, DELHI.—The marble walls and screens of this monument had become covered with dust and grime, making the whole monument a spotted structure of dark grey. The walls, screens and pillars were subjected to elaborate cleaning with the help of alcohol, dioxan and hydrogen peroxide. Detergents like lissapol and teepol B-300 were also used for removing the grime. The work has to be continued. Pyrite stains were reduced as far as possible with oxalic acid.

4. ARAB-KI-SARAI, NIZAMUDDIN, NEW DELHI.—-The paintings on the exterior walls of Arab-ki-Sarai were freed from thick layers of dust, dirt and smoky accretions with the help of organic solvents such as amyl acetate and petroleum ether. Accretions of dried moss and lichen were softened with aqueous ammonia and some surface active agents and gently brushed off. After drying, the painted surface was preserved by applying a suitable preservative resin solution.

HIMACHAL PRADESH

5. PAINTINGS IN GUMPHAS OF TABO MONASTERY, DISTRICT LAHUL AND SPITI.—The work

[1] Information from Chief Archaeological Chemist except the items 25 and 26 which were received from Director of Archaeology and Museums, Rajasthan and 41 from Director of Archaeology, West Bengal.

was resumed by a team of Chemists, Modellors and other technical staff. The work of cleaning of paintings, executed on mud-walls, which were covered with soot, dust and mud streaks, was taken up with the help of organic solvents in Zelma and Duwang gumphas. The paintings after cleaning were subjected to preservation with the help of 1-2 per cent poly vinyl acetate in toluene to stop flaking of pigments.

The painted plaster which tended to part from wall was fixed back with the help of plaster of Paris and adhesives. The broken edges of the plaster were strengthened by fixing and filleting. The cracks which developed in the painted walls were filled properly and tinted to match the surroundings.

KARNATAKA

6. CHENNAKESAVA TEMPLE, BELUR, DISTRICT HASSAN.—Cleaning and preservation of the intricate carvings and sculptures was continued from the last year's work in the interior of the temple. The covered pillars and canopies of different aisles which were disfigured by thick coats of soot and other accretions were cleaned with teepol and ammonia in different proportions. Cleaned surfaces were preserved with a 3 per cent solution of poly vinyl acetate in toluene. The total area cleaned this year is 383 sq. m.

7. PAINTINGS IN DARIA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—Chemical treatment and preservation of the paintings in the central hall of ground floor was continued this year and was completed. Loose plaster and pigment layers were fixed with adhesives. Broken edges of plaster were filleted with plaster of Paris tinted with matching colours. The old discoloured preservative was removed by using various organic solvents. Chemicals mostly used were diacetone alcohol, cellosolve, morpholine, butyl acetate, etc. Turpentine was used as a restrainer whenever it was found necessary. The treated areas were preserved with a 3 per cent solution of poiyvinyl acetate in toluene. The remaining painted area was subjected to general cleaning with hair burshes to remove dust and prevent growth of cobwebs. Insect nests were eliminated after softening them with alcohol.

8. KESAVA TEMPLE, SOMANATHPUR, DISTRICT MYSORE.—The work in this temple was continued and completed during this year. It involved the removal of black moss and white and grey patches of lichen from the exterior surface of the temple. The interior of the temple was coated with white lime accretions and soot deposits which were also successfully removed. The entire cleaned area on the exterior was given fungicidal treatment with 3 per cent sodium pentachlorophenate in water. Further, 3 per cent solution of methyl methacrylate in toluene was used as preservative coat.

KERALA

9. VADAKKUNATHA TEMPLE, TRICHUR, DISTRICT TRICHUR.—Chemical preservation of the famous wood carvings in the three *mandapas,* located in front of Vadakkunatha, Sankara-narayana and Sri Rama shrines was commenced. The *mandapas* are decorated with beautiful bracket figures, carvings and images. These wooden carvings were covered with dust, dirt, thick accretions of soot and hardened oils. Of an estimated area of 474 sq. m an area of about 257 sq. m was cleaned with the help of solvents. A 3 per cent solution of teepol with 1 per cent ammonia in water was found to be very effective for cleaning out the accretion. Very pleasing details of workmanship on wood have now been brought to view.

MADHYA PRADESH

10. PARSVANATH TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—The work of chemical cleaning was continued further from last year's work for the eradication of moss, patches of lichen, thick coats of lime-wash and lime-mortar and soluble salts. The lime-morter coats were softened by dilute acetic acid and removed by mechanical means. The salts were extracted from the stone with applications of paper pulp. A 1 per cent zinc silicofluoride in water was applied as a fungicide and after drying of the stone surface a 3 per cent solution of polyvinyl acetate in toluene was used as a preservative coat. The temple now gives the look of an ancient monument as distinct from a lime and plaster-coated structure.

11. PAINTINGS IN CAVES, BAGH, DISTRICT DHAR.—It was observed that due to high humidity insect activity in the painted plaster of Cave 3 had increased. To eradicate these insects and their larvas, the insect holes were injected with a solution of 10 per cent formaline in a mixture of methyl alcohol and toluene. After injections insects remains were removed with the help of blowers. Temperature and relative humidity at various intervals were recorded.

The paintings in the outer wall of the verandah of Cave 4 were found to be covered with thick coats of dust under wooden shutters. They were properly cleaned of this deposit. It was also observed that there is a wide fluctuation in the relative humidity of this cave at different intervals.

12. CAVES, UDAYAGIRI, DISTRICT VIDISHA.—Sculptured area on the external surface of Caves 5 to 12 was chemically cleaned. Vegetational growth, dust and dirt were removed with the help of 1 per cent ammoniacal water. A coat of 1 per cent zinc silicofluoride was applied on the surface to ward off recurrent vegetational growth. The friable surface was then consolidated with a solution of polyvinyl acetate in toluene.

MAHARASHTRA

13. CAVES, AJANTA, DISTRICT AURANGABAD.—Chemical cleaning of the wall-paintings on the wall of the northern aisle of Cave 17 which was in progress during last year was continued (pl.XCVand XCVIII) .The problems of treatment of the paintings on this wall were quite intricate as a thick layer of white accretion of web-like pattern had hidden all the details of paintings. For the removal of chalkiness and of the remnants of shellac varnish organic solvents such as cellosolve, acetone, butyl acetate, dimethyl formamide, cyclohexylamine, morpholine etc. were used individually and in suitable mixtures. More resistant incrustations which did not respond to action of these solvents were treated with a 5 per cent solution of formic acid in alcohol. This led to softening of the upper layers of the accretion which seems to include a caseinate. Softening of the caseinate with formic acid facilitated removal of the underlying accretions with organic solvents. It appeared during investigation of the accretion that its origin may be partly attributed to bat excretum.

During the year the work of cleaning was carried out on panels 6 to 10 of the north wall as well as on the east and west walls. Several details of paintings which were not at all visible and were masked by the accretions can now be viewed clearly. A coat of 1 per cent polyvinyl acetate on the cleaned paintings was found to impart full saturation to the colours. The work has almost been a break-through in tackling the problem of cleaning of these paintings.

In Cave 6, the cleaning of painted walls and ceiling of the shrine of Buddha on the ground floor was also continued this year. The ceiling of this chamber was having a thick deposit of sooty substances obscuring the paintings, and the deposit was successfully cleaned and beautiful floral and geometrical patterns have been exposed. Cleaning was also done on the

south-eastern wall which had a uniformly dark appearance on account of a thick deposit of soot on which, at places, a varnish layer was noticed. The cleaning of this wall resulted in the appearance of a row of seated Buddha figures in fine details. Cracks in the painted surface were flattened out to give an even surface to the paint layer.

The profusely-sculptured facade of Cave 19 had become covered with thick growth of moss and crusts of lichens in addition to dust, dirt and droppings of birds. The entire facade was chemically cleaned and preserved. It had been observed that the bare plaster on the walls and ceilings inside the cells in the painted caves had been the main breeding ground for insects that were found to migrate to the painted surface.

The work of spraying the cells in painted Caves 1,2, 16 and 17 with suitable insecticides once a month was taken up. The insecticide used was a mixture of pyrethrum and phosphorus formulations.

The paper reproductions of Ajanta paintings, prepared by the Artists of the Survey, were exhibited in Cave 4. These reproductions were being damaged by the insects like silver fish. The insects were exterminated by using pyrethrum and D. D. V. P. in suitable dilutions. To minimize the odour of insecticide a little lime-oil was added to the mixture. Sachets, containing paradichloro benzene and napthalene balls were arranged near the panels to prevent breeding of insects.

The dust accumulating on the painted surface is being regularly removed by brushing with feather brushes and soft muslin cloth.

Strengthening and consolidation of the friable and broken painted plaster in Caves 6, 10 and 11 was continued and considerable progress made during the year. All broken edges of painted plaster were strengthened by filleting them with the help of plaster of Paris, suitably tinted with earth colours. The plaster which bulged out at places was fixed back to the rock-surface with the help of 20 per cent polyvinyl acetate solution and plaster of Paris and pressing.

The recording of temperature and relative humidity in all the important caves continued. In addition to the measurements at fixed hours by means of thermometers and hygrometers continuous observations have also been maintained with the thermo-hygrographs. Moisture-content in the plaster as well as in the rock were also determined at fixed intervals to get information on moisture movements in the walls of the caves.

14. CAVES, ELLORA, DISTRICT AURANGABAD.—Regular chemical conservation of the Kailasa temple (Cave 16) was undertaken for the first time. Substantial progress has been made in the chemical treatment of the exterior of this temple which was thickly covered with black dried moss and big grey patches of lichen, all disfiguring the temple. Before removing these undesirable accretions it was found necessary to cover the paintings with which the temple was also adorned in eighteenth century. Accordingly, all the painted plaster was protected from wash-waters by covering it with the help of polythene sheets. Algal growth was removed by cleaning with 5 per cent solution of ammonia and a 2 per cent solution of Teepol. After removal of accretions, the stone surface was treated with a fungicide. A 3 per cent solution of polyvinyl acetate was applied for consolidating the pitted surface.

Work has been completed on the five subsidiary shrines all round the temple and is being continued on the *sikhara* of the main temple, as a result of which decoration and mouldings of large figures of lions on the roof have now come in full view.

Experimental chemical treatment of paintings in Lankesvara has been taken up this year. The experimental work carried out showed promising results. The paintings which are covered with black soot and other undesirable accretions are likely to be exposed in regular working.

In the porch of Lankesvara, large chunks of smoked painted plaster were found detaching from the ceiling and hanging loose. These painted plaster pieces were re-attached to the rock with the help of suitable adhesives.

15. CAVES, ELEPHANTA, DISTRICT BOMBAY SUBURBAN.—The magnificent sculptures in the caves of Elephanta were found to be undergoing exfoliation due to salt action. A large number of cracks were also observed on many sculptures, some in need of major repairs. The sculptures were also found to be covered with thick coats of dust, dirt, bird dropping and other accretions. The work of chemical treatment was taken up during this year in the shrine of Mahesamurthi as well as in the eastern porch of the main cave. Wherever the sculptures were found affected by soluble salt efflorescence, they were subjected to repeated applications of paper pulp to draw out salt. The sculptures were also cleaned of oil and dust with the help of 2 per cent Teepol solution to which a little ammonia had been added. The whitish accretions were removed with a dilute solution of acetic acid, followed by thorough rinsing with water. Small and very thin cracks were filled up with polyvinyl acetate solution and the cracks of medium size with rock power mixed with 20 per cent polyvinyl acetate solution. Epoxy resins are being tried for joining of large cracks.

ORISSA

16. RAMESVARA TEMPLE, DISTRICT CUTTACK.—This small temple on the bank of the Mahanadi was taken up for chemical treatment and preservation after eradicating the accretions of moss and lichens and other accretions. Tergitol surfactant was employed during the work. The temple after complete cleaning was subjected to fungicidal treatment for prevent ing recurrent growth, and finally preserved with two coats of 3 per cent polyvinyl acetate solution in toluene.

17. ANANTA BASUDEVA TEMPLE, BHUBANESWAR, DISTRICT PURI.—After completion of the cleaning of the *deul,* the top-portions of *jaga-tnohana, bhoga-mandapa* and *natamandir* were taken up for treatment and preservation. The lime-wash, moss and lichen and other ochreous accretions were removed. Portions affected by soluble salts were subjected to paper pulp treatment to arrest further flaking of the stone as far as possible.

18. CHITRAKARINI TEMPLE, BHUBANESWAR, DISTRICT PURI.—Sculptures on the subsidiary shrines on the north-east corner were disfigured because of the hard incrustations of lichens which completely masked the mouldings of the *vimana.* Very careful work of treatment was carried out on the friable stone. More than half of the dome has been cleaned with the help of chemicals using soft nylon brushes and chemicals.

19. MARKANDESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The southern side of the *deul* portion has been freed from the tufts of black moss by using 1 per cent ammoniacal solution in water. The work is in progress.

20. MEGHESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—Chemical treatment was continued for the removal of thick moss from the western portion of the *deul.* The area was freed from the accretions. The work will have to be continued next year.

21. SIDHESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The temple which was subjected to elaborate chemical treatment in 1974-75 was cleaned to remove residual accretions. The whole temple was then preserved with the help of 3 per cent polyvinyl acetate in toluene.

22. SUN TEMPLE, KONARAK, DISTRICT PURI.—During this period the work of chemical treatment was intensified by increasing the number of workmen and supervisors. Pressure pumps and different types of nylon brushes were put to use for washing out the softened accretion. The

work was completed on the vertical walls near the junction of remnants of the *deul and jaga-mohana* on the southern side including that of the plinth. The area after the removal of tufts of black moss, grey patches of lichens and efflorescence of soluble salts was given a fungicidal treatment followed by a preservative coat.

23. LAKSHMI TEMPLE, JAGANNATH TEMPLE-COMPLEX, PURI, DISTRICT PURI.—After removal of coloured ochre washes and cement coats from the northern vertical walls, the work of cleaning was taken up from the top of the south vertical walls of this temple with the help of 2 per cent acetic acid solution in water. The cement coats were very tenaciously adhering to the walls and came off only with much efforts. Densely-carved decoration has been uncovered.

PUNJAB

24. MASTER MUSICIAN'S TOMB, NAKODAR, DISTRICT JULLUNDUR.—The work of removal of tufts of moss hanging from the polychrome glazed tiles, painted bricks and painted niches was resumed. These areas, except the painted ones which were treated with turpentine oil, were cleaned with help of ammoniacal water.

RAJASTHAN

25. AMBER PALACES, AMBER.—Wall paintings of the palaces were freed from layers of whitewash. Nearly ten panels at Mansingh's apartment have been brought to view.

26. VIRATNAGAR, JAIPUR.—The work of cleaning and restoration of wall paintings inside the four rooms was continued. Deposits of heavy smoke, dust and dirt were removed from nearly thirty wall paintings.

TAMIL NADU

27. KAILASANATHA TEMPLE, KANCHIPURAM, DISTRICT CHINGLEPUT.—Work of uncovering of paintings, hidden under thick lime-plaster and lime-wash from the walls and panels in some cells and sub-shrines abutting the compound wall of this temple, was carried out; as a result new panels of paintings have been exposed.

Several pieces of painted plaster were found detaching from the wall-surface. They were consolidated and fixed to the wall with the help of 20 per cent polyvinyl acetate. The broken edges of painted plaster were strengthened by filleting the corners with plaster of Paris tinted to match with the surroundings.

The work of consolidation and preservation of subsidiary shrines, made of sandstone, containing sculptures and inscriptions was also taken up in this temple. The areas so treated were the eight subsidiary shrines in front of the temple, the *gopura* and the lower portion of the eastern wall. The black vegetational growth was removed with the help of 1 per cent ammoniacal water and 3 per cent Teepol. After removal of vegetation the areas were treated for the extraction of soluble salts. Out of a total area of 1342 sq. m, an area of about 476 sq. m was treated properly. Arrangements for conducting trials towards consolidation of crumbling stones with Epoxy resin compositions were also taken up in hand.

28. BHIMA-RATHA, DHARMARAJA-RATHA, MAHABALIPURAM, DISTRICT CHINGLEPUT.—A few *solas* and *kudus* of the two *rathas* were cleaned of vegetational growth with a solution of 3 per cent ammoniacal Teepol solution. The entire area of 23 sq. m was preserved with 3 per cent polyvinyl acetate solution in toluene.

29. MAHISHASURMARDINI MANDAPA, MAHABALIPURAM, DISTRICT CHINGLEPUT.—The

chemical treatment and preservation of sculptures initiated during the last year was completed. Dust, dirt, soot, vegetational growth, moss and lichen were removed with the help of ammonical water and surfactant Teepol solution (3 per cent). Paper pulp treatment for the lamination of soluble salts was also carried out during this year. The entire *mandapa* was preserved with 3 per cent methyl methacrylate in toluene. An area of about 236 sq. m has been treated.

30. OLD ARJUNA'S PENANCE, MAHABALIPURAM, DISTRICT CHINGLEPUT.—The chemical treatment and preservation of this panel on a surface area of 306 sq. m was taken up and completed. Moss patches of lichen and other vegetational growth and salt efflorescence were eliminated. The patches of ancient plaster and stone found to be loosening were consolidated and fixed to the rock. The area was preserved with 3 per cent polyvinyl acetate solution.

31. VAIKUNTHAPERUMAL TEMPLE, UTTIRAMERUR, DISTRICT CHINGLEPUT.—An inscribed area of about 252 sq. m on the side walls of the plinth of this temple was treated for the removal of dust, dirt, lime-plaster, vegetational growth and some tarry substances. The lime-plaster and lime-wash were removed by softening with dilute acetic acid and mechanical means. One per sodium pentachlorophenate in water was used as a fungicide which was followed by a preserva tive coat of 3 per cent methyl methacrylate.

32. BRIHADISVARA TEMPLE, THANJAVUR, DISTRICT THANJAVUR.—The chemical treatment and preservation of paintings in the Brihadisvara temple, Thanjavur, that remained suspended for some years, was resumed. Paintings on an area of about 93 sq. m in the Tandava-gallery on the first floor were treated and preserved. Dust and dirt were removed by gentle brushing. Lime-wash and lime-plaster were removed by mechanical means. A brownish accretion which was quite tenaciously adhering was softened by using triethanplamine, cellosolve, butyl lactate, acetone, etc. The area so treated comprised southern, eastern, western and northern corridors and verandah. The accretion on the paintings is being investigated.

UTTAR PRADESH

33. ARAMBAGH, AGRA, DISTRICT AGRA.—The Mughal paintings in the southern part of the Baradari on the bank of river Yamuna were covered under thick coats of lime-morter and lime-wash of about 0.5 to 1 cm. At places flaking of lime-plaster indicated the presence of hidden paintings underneath. Regular removal of the lime-plaster from the surface of the paintings was taken up this year on the arch on the west in the chamber facing the river: it was done mechanically after softening the surface with the help of dilute acetic acid. Hardwood chisels were improvised for the work. Final cleaning of the pigment was carried out with the help of organic solvents like alcohols, ethers, etc. This also softened the glue-medium of the lime-plaster residue. The removal of lime-wash revealed beautiful paintings (pL. XCVI) in bright and saturated colours depicting different flowers, geometrical patterns and birds. The work of exposing the paintings is being continued.

34. CHINI-KA-RAUZA, AGRA, DISTRICT AGRA.—The dome and walls of Chini-ka-Rauza are decorated with multi-coloured tile-work in geometrical floral patterns. The interior of the dome and walls of side rooms are painted with exquisite designs. The work of cleaning of the dome was taken up as it was covered with black-dried crusts of moss, dust and dirt. The dome was freed from these accretions with the help of ammoniacal water uncovering the tile-work. This was given a fungicidal coat to minimize vegetational growth. The area was then preserved with polyvinyl acetate solution in toluene for fixing up the peeling enamels of the tiles.

35. TAJ MAHAL, AGRA, DISTRICT AGRA.—The work of cleaning the marble of the front wall of the main platform of the Taj and vertical walls of the platform in the centre of the water channels was continued further from that of the last year. The walls which were having a patchy vegetational growth were given proper cleaning with the help of chemicals. Other stains were removed with solvents like dioxane. Pyrite stains were reduced with hydrogen peroxide and oxalic acid to restore the white surface of marble. Recurrent growth of moss on the etched marble surface below the drain outlets on the floor above had to be specially attend to.

Chemical treatment of the big arch on the entrance of the mausoleum was also taken up. The arch was found to be covered with a lot of dust, dirt, smoke and other black deposits. A number of iron oxide stains, originating in old nails and hooks, were also present at places. The lower portion of the walls were quite dirty due to constant rubbing of visitors' hands that deposited oils on the marble surface, which was cleaned with several organic solvents. Every attempt was made to remove the iron stains which have been reduced to a light tint. The cleaned surface was then polished with a transparent formulation to give the marble its old lustre. Beehive residues containing waxes were also removed.

36. ZANANA PALACE, ALLAHABAD FORT, ALLAHABAD, DISTRICT ALLAHABAD.—The work of cleaning of floral paintings and geometrical designs on the sandstone walls in the Zanana palace was undertaken. The paintings after proper cleaning have become quite clear.

37. ASOKAN ROCK-EDICT, KALSI, DISTRICT DEHRA DUN.—Salt efflorescence was noticed at a few places on this rock-edict. The whole surface was made salt-free by extracting the salts with the help of paper pulp. After removal of salts the surface of stones was preserved with the help of a coat of 2 per cent poly vinyl acetate in toluene. The mud-filling in the engraved lettering of the inscription was flushed out after softening.

38. DHAMEKA STUPA, SARNATH, DISTRICT VARANASI.—The geometrical and floral stone-carvings on the vertical portion of the *stupa* are disfigured with moss and patches of lichens; erosion of the outer layer of the stone-slabs has also occurred. The area was subjected to elaborate chemical cleaning. After cleaning, the stone surface was consolidated with a 3 per cent solution of polyvinyl acetate in toluene.

WEST BENGAL

39. RADHESHYAM TEMPLE, BISHNUPUR, DISTRICT BANKURA.—The temple is adorned with terracotta figures which were found covered with incrustations of moss and soot. The soot and tarry matter was removed on the south wall and the ceiling with the help of 2-3 per cent Teepol solution in water. The dried moss was removed by brushing with soft brushes and ammoniacal water from the surface of terracotta figures.

40. LOTON MOSQUE, GAUR, MALDA, DISTRICT MALDAH.—The enamelled panels on the entrance verandah of Loton mosque were put under chemical treatment for removal of old hardened accretions of soot and oil. They were cleaned with ammoniacal water solution in combination with Teepol, diacetone alcohol, ether, esters and dibutyl pthalate etc. The mixture was so chosen so as not to affect the enamel decoration and its cementing material.

41. DAKSHINA KALI TEMPLE, MALANCHA, DISTRICT MIDNAPORE.—The terracotta plaques of the temple affected by organic growths and injurious salts were chemically treated.

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM EXHIBITS

In the laboratory of the Chief Archaeological Chemist, Dehra Dun, a total number of four thousand five hundred and sixty-nine iron and copper antiquities, received from the Excavations Branches of the Survey, was chemically treated and preserved, besides cleaning of one hundred coins of the Archaeological Museum, Kondapur. Pencil sketches from the Tipu Sultan Museum, Srirangapatna, were cleaned of fox-marks and stains, and then deacidified before being preserved. Some Sumerian seals received in exchange have been cleaned, strengthened and preserved.

About two hundred objects in the Arms Gallery at Patiala, under the Department of Archaeology, Punjab, were chemically treated. Two hundred thirty-five coins, a lead seal bearing Kharoshthi legend, apart from three lead coins and three silver coins, were chemically treated and preserved.

In the Department of Archaeology and Museums, Rajasthan, one thousand coins, a silver ornament, a stone sculpture, a terracotta and a copper bowl were given chemical cleaning for preservation. A tempera wall-painting in the Central Museum, Jaipur, was consolidated and restored.

Sixteen silver punch-marked coins from Farakka, District Murshidabad, twenty-five terracotta figurines from Chandraketugarh, 24 Parganas, two examples of Mother Goddess from Farakka and ten sherds of painted pottery from Baneswar Dange, District Burdwan, were given chemical treatment by the Department of Archaeology, West Bengal.

ANALYSIS AND RESEARCH[1]

For the purpose of assessing the atmospheric conditions in and around the Taj Mahal, Agra, collection of data regarding relative humidity, temperature and stone surface temperature was undertaken. Analysis of marble specimens taken from the Taj was also conducted. Staff members of the Chemistry Branch of the Survey were associated with the Italian Consultants Messrs Tecneco in evaluating the pollutant levels in the air in the vicinity of the Taj.

Analysis of pigment of the paintings in Tabo monastery was continued. Investigations on the development of chemicals and cleaning processes for chemical treatment of paintings and sculptures made progress in the context of conservation of the paintings in the caves at Ajanta and in Aram Bagh, Agra. The use of phosphorus insecticide fumigants were tried in the caves at Ajanta and Bagh to determine their efficacy in extermination of crawling, boring and flying insects. Experiments in the use of Epoxy resins for consolidation of crumbling stone at Mahabalipuram and other monuments were also taken up.

GEOCHRONOLOGICAL STUDIES.—Features and grades of heavy minerals, obtained from the soil specimens collected from the Purana Qila, New Delhi, and Mathura excavations, were studied in order to construct the mode of deposition for establishing the palaeoclimatic conditions of the soil.

Fluorine analysis of bones from some sites in Himachal Pradesh was carried out for a comparative investigation.

[1] Information from Chief Archaeological Chemist.

XL ARCHAEOLOGICAL GARDENS[1]

ANDHRA PRADESH

1. ARCHAEOLOGICAL MUSEUM, AMARAVATI, DISTRICT GUNTUR.—Low-lying area around the Museum-building has been filled up with loose earth with a view to initiating garden operation.

2. NAGARJUNAKONDA, DISTRICT GUNTUR.—Despite irregular water-supply, the lawns around the Rest Houses and the Archaeological Museum were returfed. Varieties of trees and shrubs were planted in pits in the First and Second Enclosures.

DELHI

3. RED FORT, DELHI.—Returfing of this garden was completed and the fountains in the Rang-mahal area were re-commissioned as a result of improvement in the water supply.

4. HAUZ KHAS, NEW DELHI.—The garden was maintained in presentable condition. Lawns were dug up for returfing.

5. HUMAYUN'S TOMB, NEW DELHI.—Returfing of the entire inner area was done and rose beds were extended in the front area according to the suggestion of the Landscape Committee. The row of Bougainvillaeas on either side leading from the middle gate to the main inner gate were replaced by Thuja plants. New seasonal beds were also introduced. Plant wealth in the Humayun's tomb Nursery has been enriched; new varieties of roses were also introduced.

6. KHAIRUL-MANZIL MOSQUE, NEW DELHI.—Plantation along the boundary wall was completed, and the garden maintained in presentable condition throughout the year.

7. KHAN-I-KHANA'S TOMB, NEW DELHI.—Lawns were dug for returfing in the month of March.

8. KOTLA FIRUZ SHAH, NEW DELHI.—Returfing of this garden was completed and steps were taken to improve the water supply. Pits were dug and plantation done on a large scale.

9. LODI TOMB,_ NEW DELHI.—In spite of shortage of water the garden was kept in presentable condition.

10. NAJAF KHAN'S TOMB, NEW DELHI.—The general layout of the garden has been completed and plantation scheme of roses is being undertaken shortly.

11. PURANA QILA, NEW DELHI.—More than four hectare of land was cleared for develop ing the garden which is in the last stage of development. Further, about ten thousand plants of different varieties were planted.

[1] Information from Chief Horticulturist of the Survey except items 27, 36 and 39 which were supplied by the respective State Departments of Archaeology.

12. SAFDARJUNG TOMB, NEW DELHI.—Regrassing of the front area was completed as the lawn had been badly affected by the stagnation of rain water.

GOA

13. PROTECTED MONUMENTS, VELHA GOA.—Fountains were put to order by constantly running the booster pump and illuminating them by coloured lights during the night. The The scarcity of water in garden around the Bom Jesus Church was overcome by installing a 5 h.p. ejecto jet pump. Pathways were edged with kerb stones and the north-east corner of Cathedral was landscaped by *Polyilthia pendula.*

JAMMU AND KASHMIR

14. MARTANDA TEMPLE, DISTRICT ANANTANAG.—Earth work in front of the monument was completed and steps are being taken to develop a garden and to improve the approach road and side-paths.

KARNATAKA

15. ALI II ROUZA, BIJAPUR.—The ancient well was reconstructed and the surroundings of the monument were improved.

16. ARQTJILLA GARDEN, BIJAPUR.—All the rockeries were relaid while gates with grills were provided to prevent stray catties entering the garden.

17. ASAR-MAHAL, BIJAPUR.—The garden was completely renovated and regrassed. Pathways were relaid while worn-out pipelines were replaced by new G. I. pipes.

18. GAGAN-MAHAL, BIJAPUR.—This small garden after its renovation is being main tained in the most presentable condition.

19. GOL-GUMBAD, BIJAPUR.—The general look of the garden was improved by adding six hundred trees in addition to the replacements of casualties. The newly-built conservatory has been embellished with large number of pot-plants of different varieties. An obtrusive structure towards the west was camouflaged by a grove of casuarinas.

20. IBRAHIM ROUZA GARDEN, BIJAPUR.-—About two hectares of land were found available for landscaping. The land has been enclosed by barbed-wire fencing erected on a dwarf rubble wall. However, the existing garden was well-maintained in spite of its getting inundated due to heavy rain.

21. JAMI-MASJID, BIJAPUR.—Suitable plants were planted appropriately and the garden was kept in nice condition.

22. JOD-GUMBAD, BIJAPUR.—The rear portion of Khawas Khan's tomb has been converted into an arboratum by planting ornamental flowering trees. All the rockeries were reset with new plants and the casualities in the orchard suitably replaced.

23. HOYSALESVARA TEMPLE, HALEBID, DISTRICT HASSAN.—The old wall bifurcating the

garden was removed in order to provide a full view of the monument. Planting of roses in curved beds and ornamental flowering trees added to the beauty of this vast garden.

24. DARYA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—Concrete edging, duly painted with terracotta coloured paint, was provided to the paths, laid out recently. Several varieties of shrubs and creepers, which were considered surplus, were sold out. Further improvement was made to the rose garden here.

25. GUMAD-E-SHAHI, SRIRANGAPATNA, DISTRICT MANDYA.—The reoriented garden on Charbagh pattern has come up and the plantation of orchard taken up on all the four sides.

26. KESAVA TEMPLE, SOMANATHPUR, DISTRICT MYSORE.—The lawn has come up satisfactorily after the reconditioning of the soil. Casualities in shrubbries and coconut grove were replaced.

KERALA

27. GARDENS UNDER DEPARTMENT OF ARCHAEOLOGY, TRIVANDRUM.—Gardens were laid in the area around the Archaeological Museums at Kozhikode and Trichur, while gardens at Krishnapuram, Kottapuram, Padmanabhapuram palace, and Pallipuram fort were kept in good condition.

MADHYA PRADESH

28. KHAJURAHO GROUP OF TEMPLES, DISTRICT CHHATTARPUR.—The gardens were kept in presentable condition despite scarcity of water. Now the Central Public Works Department has been entrusted with the work relating to the water supply to the gardens.

MAHARASHTRA

29. BIBI-KA-MA.QBARA, AURANGABAD.—The garden was returfed and all along the peripheral wall *Grivella robusta* was planted to serve as a tall green screen. Along the three plots were planted *Biota compacta.*

ORISSA

30. BHASKARESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The area around the temple, which had been fenced, was cleared of all rank vegetation. Digging and levelling works are in progress.

31. CHITRAKARNI TEMPLE, BHUBANESWAR, DISTRICT PURL—Small plots of lawns with few flower beds have been developed.

32. MUKTESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—A garden has been laid out in the area within the compound wall. It has also been provided with pipelines for the purpose of irrigation.

33. RAMESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—For starting the horticultural operation, the area was cleared of all jungle growth. A pumping set had been installed and the pipelines were laid out.

34. SUN TEMPLE, KONARAK, DISTRICT PURL—The peripheral area adjoining the compound wall of the temple had been cleared of the rank vegetation and the surface soil replaced by good clayey soil.

35. JAGANNATH TEMPLE, PURI, DISTRIGT PURL—Two plots inside the temple-area had been developed and Jasmins, flowering shrubs and roses were planted.

PUNJAB

36. GARDENS UNDER STATE DEPARTMENT OF ARCHAEOLOGY.—Steps have been taken by the Government of Punjab to revive the old outlay of the Mughal garden at Sirhind with the advice of the Chief Horticulturist of the Survey. The garden of the Sheesh-mahal, Patiala has been greatly improved.

RAJASTHAN

37. ANNA SAGAR BARA DARI GARDEN, AJMER.—Besides maintaining the garden properly, in spite of the damage caused during the rains, steps have been taken to improve its water supply.

38. DEEG PALACE, BHARATPUR, DISTRICT BHARATPUR.—The garden is being maintained in the best possible manner. An ancient well was cleaned for making use of its water after disinfection.

39. GARDENS UNDER STATE DEPARTMENT OF ARCHAEOLOGY AND MUSEUMS.—The Ghaman Begichi garden attached to the Bharatpur Museum and gardens at Mandore, Jaswant Cenotaph, Jodhpur and Amber palace, Amber, were maintained with special care by the Government of Rajasthan.

UTTAR PRADESH

40. AGRA FORT, AGRA.—The inner garden of the Fort was improved by providing an ornamental fencing around Jahangiri-mahal, commissioning of a pumping set in the ancient *baoli* at Akbar-mahal and extending the pipelines from *baoli* to ancient overhead. Steps are being taken to revive the fountains by feeding water to the ancient tanks.

So far as the outer garden is concerned the road leading to the Yamuna was raised to check the rising flood-water; and moreover, the irrigation system in this area was improved by providing distributory pipelines.

41. AKBAR'S TOMB, SIKANDRA, DISTRICT AGRA.—Here the lawns were returfed and two tube-wells bored to improve irrigational facility.

42. ITMAD-UD-DAULA, AGRA, DISTRICT AGRA.—Periodical renovation of lawns was carried out.

43. TAJ-MAHAL, AGRA.—Outlived lawns at the Taj was returfed. The scheme of recommissioning the fountains materialized with the boring of a deep tube-well at Khan-e-Alam Nursery.

44. FATEHPUR SIKRI, DISTRICT AGRA.—Water supply for developing the garden was further improved with the re-use of the Hathi-pole *baoli.*

45. MAHET, DISTRICT GONDA.—The vast area around the monuments of Mahet, a part of ancient Sravasti, was overgrown with dense vegetation, two strips of which were cleared on either side of the road. The area is also being fenced.

XH. PUBLICATIONS

PUBLICATIONS OF THE SURVEY

1. ANNUAL REPORT ON INDIAN EPIGRAPHY.—The issue for 1968-69 was brought out.

2. EPIGRAPHIA INDICA—ARABIC AND PERSIAN SUPPLEMENT.—The number for 1970 was published and the one for 1971 is in advanced stage of printing.

3. INDIAN ARCHAEOLOGY—A REVIEW.—The issues for 1971-72 and 1966-67 were brought out.

4. GUIDE BOOKS.—*Udaigiri and Khandagiri* (second edition) by Debala Mitra, and *Mandu* by D. R. Patil (reprinted) and *Rajgir* by Mohammad Hamid Kuraishi revised by A. Ghosh (reprinted) were published.

5. MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA.—Number 75 *Nagarjunakonda* (1954-60), Volume I, of the Series, was printed off. It deals with the excavation reports up to the Megalithic period.

6. PICTURE POSTCARD.—A set of picture postcards for the Belur temple was printed.

OTHER PUBLICATIONS

ANDHRA PRADESH.—The Director of Archaeology and Museums, Andhra Pradesh, brought out the following publications: *Radiocarbon Dates of Archaeological Sites in India; Guide Book to Kolanpak Site Museum* (in English and Telugu); *Vijayanagara Charitra,* Part II; *Kakatiya Coins and Measures;* and *Arms and Armours.*

KERALA.—The Directorate of Archaeology, Kerala, brought out the publication *Temple Architecture in Kerala.*

ORISSA.—The State Museum, Orissa, brought out the following: parts I, II, III of volume V of *Orissa Alphabetical Catalogue of Sanskrit Manuscripts, part I:* and *Orissa Historical Research Journal,* vol. XVI, no. 4 and vol. XVII, nos. 1 and 2.

WEST BENGAL.—*Nadiya Jelar Purakirti* (in Bengali) was published by the Public Works (Archaeology) Department of the Government of West Bengal.

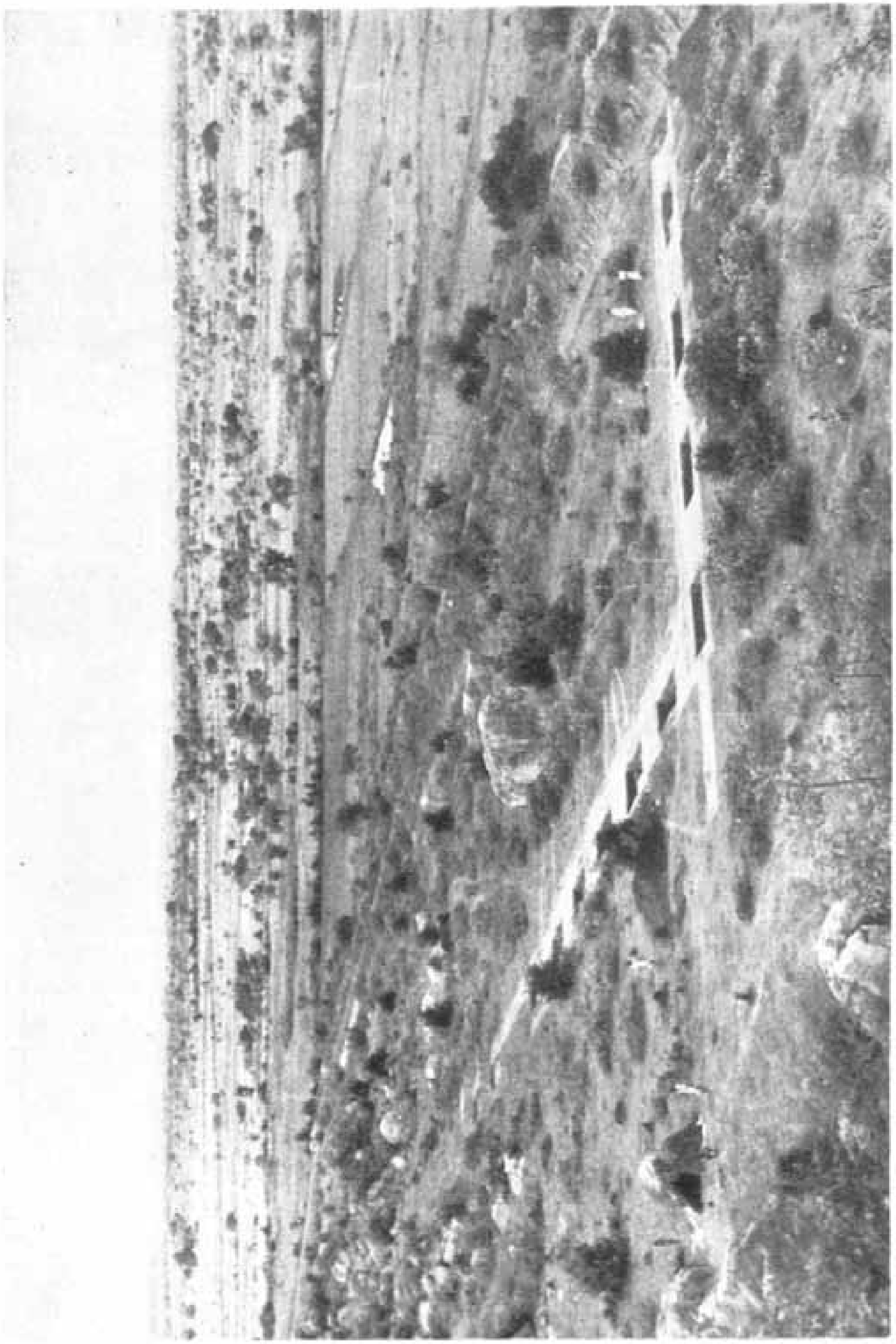


A



B

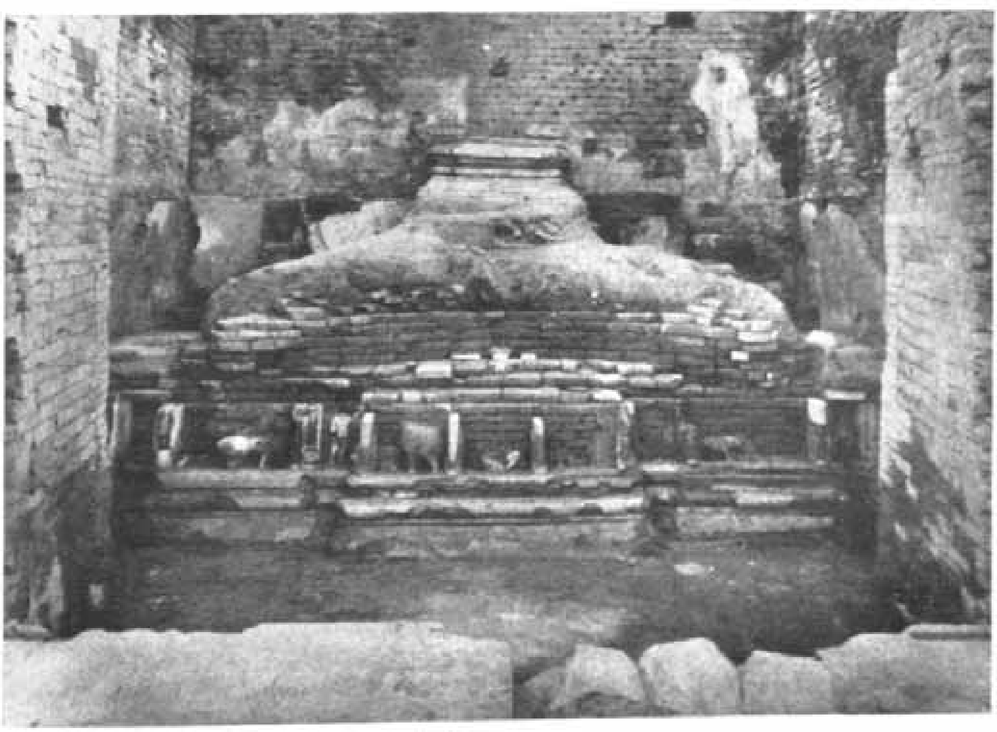
Dhulikatta : A, *terracotta figurine*; B, *slab encasing stupa with Naga Muchilinda and stupa in panels.* *See p. 2*



Polakonda : general view of excavation. *See p. 5*

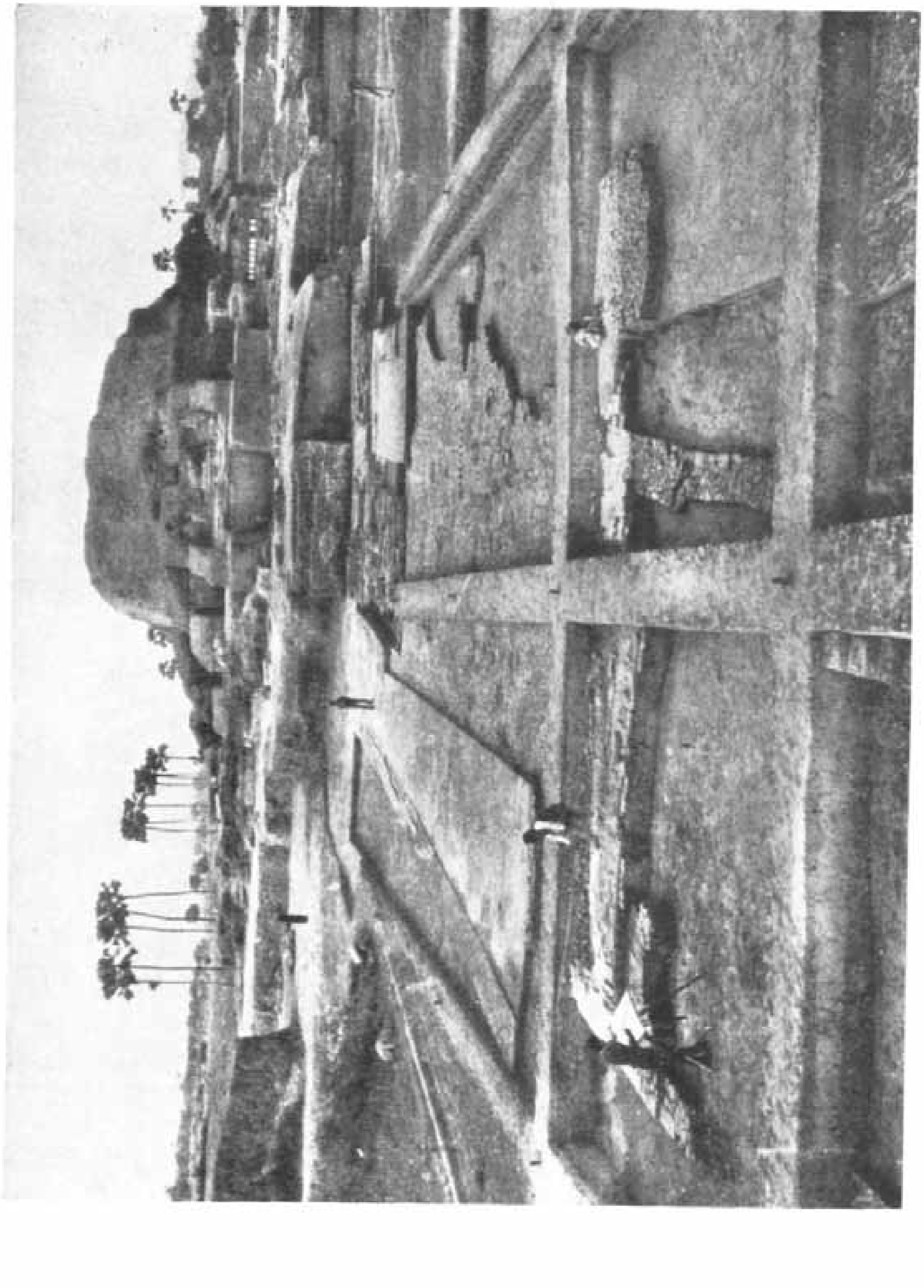


A



B

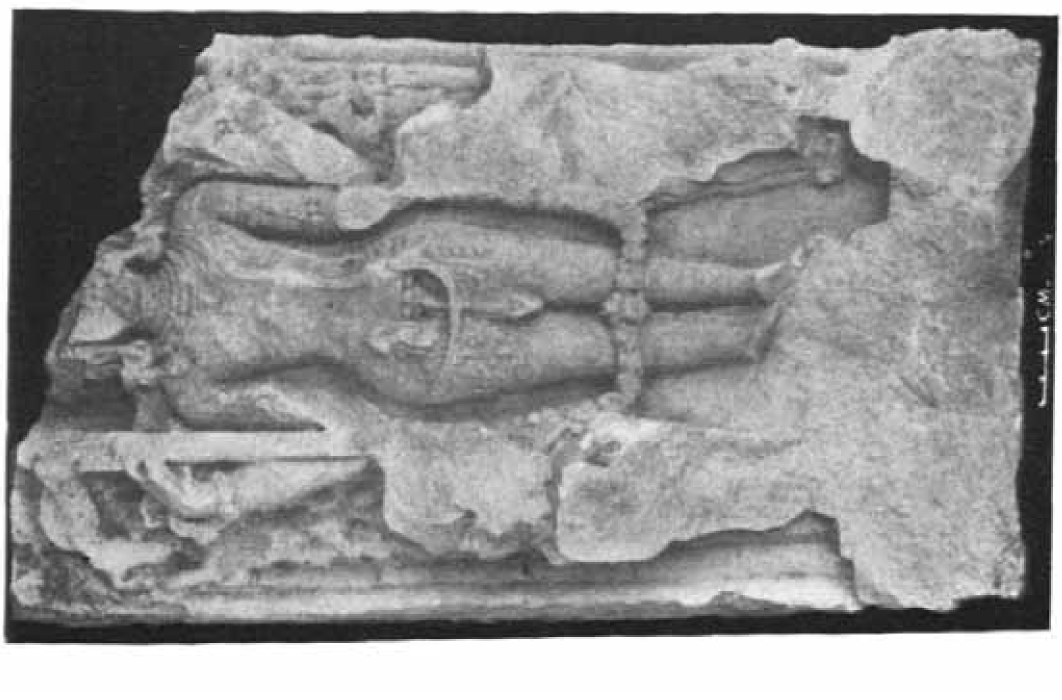
Antichak : A, *exposed passage with brick-paved flooring in the southern wing of the monastery* ; B, *mutilated sitting Buddha on pedestal.* *See p.* 6



Antichak : General view of the pathway between central shrine and northern gate. *See p. 6*



B



A

Antichak : images in limestone, A, Vishnu and B, Kaumari. *See p. 7*



B



A

Antichak : images of A, Ganesha and B, Simhanada. *See p. 7*



B



A

Antichak : images of A, Parvati and B, images of Buddha. *See p. 7*

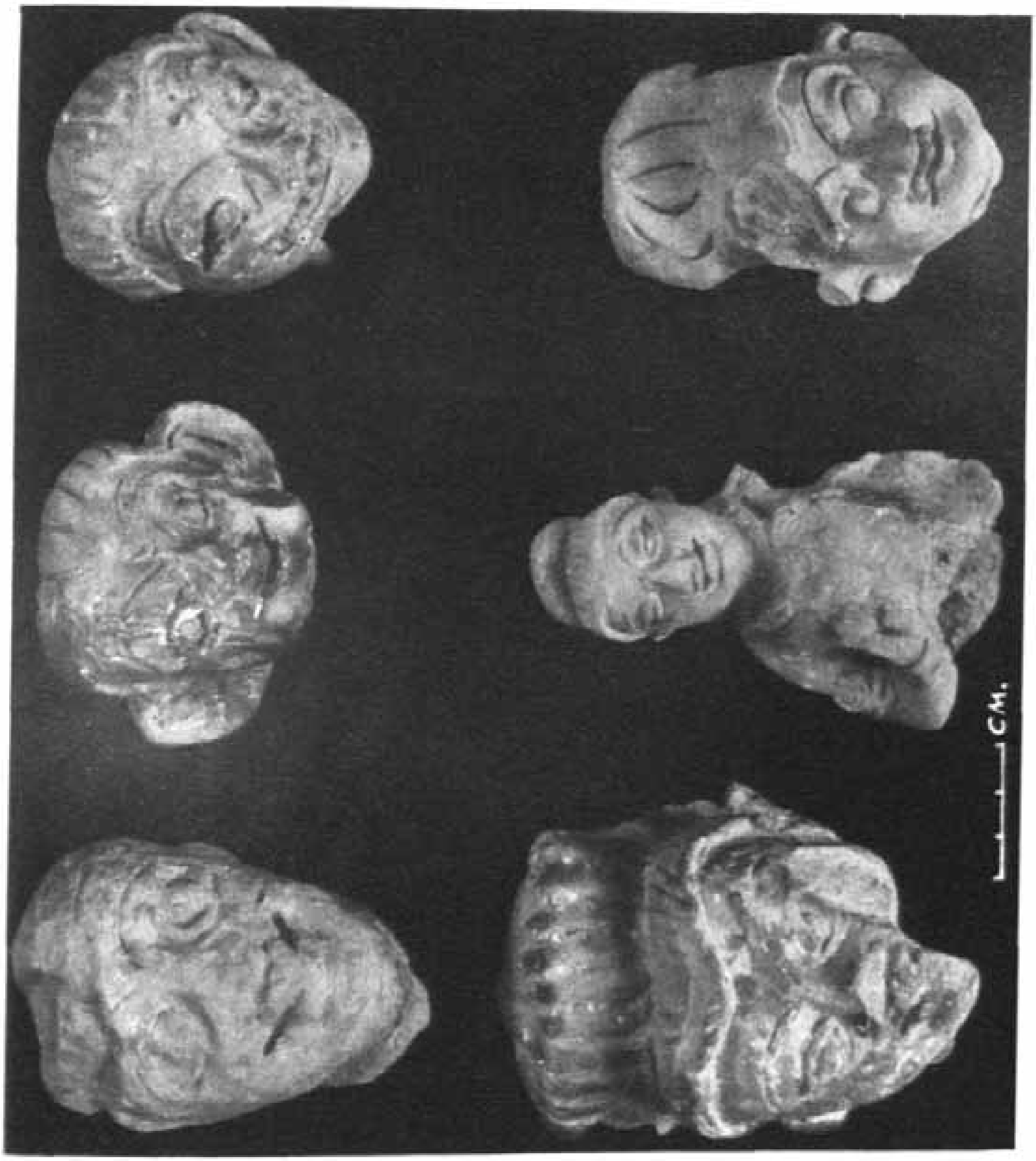


A



B

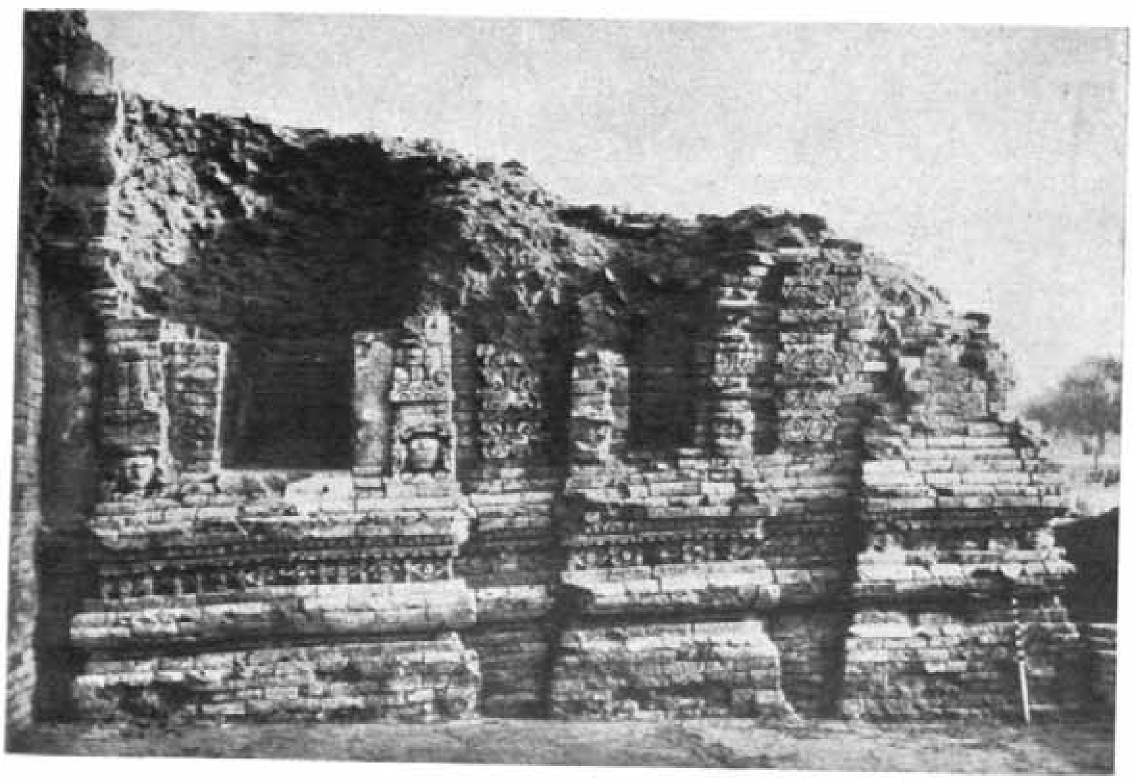
Antichak : images of A, *Sadyojata and* B, *images of Avalokitesvara. See p. 7*



Antichak : terracotta human heads. *See p. 7*

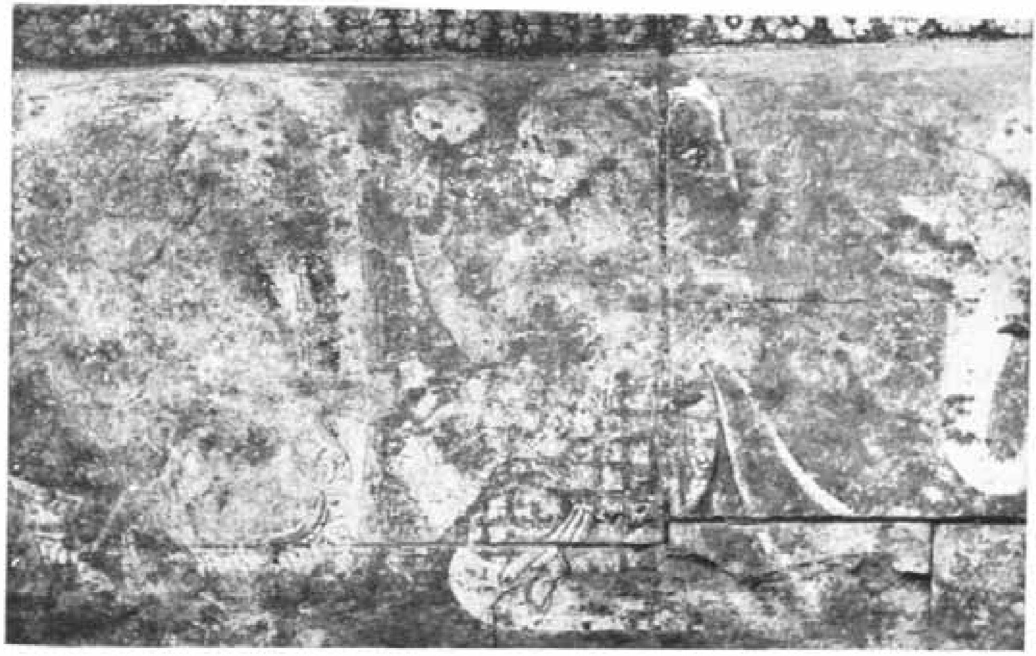


A



B

Nalanda : exposed temples at Sarai mound. See p. 8

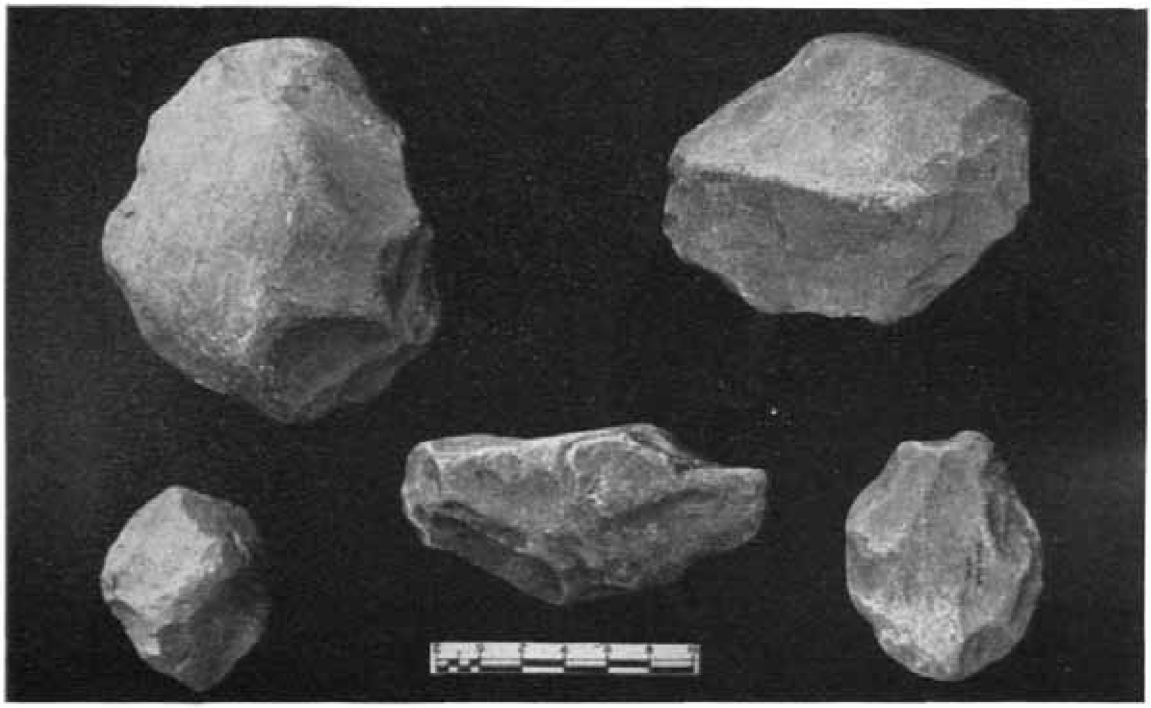


A



B

Nalanda : exposed paintings on stone pedestal at Sarai mound. See p. 9



A



B

A, *Ghoranagi and Jayada : Lower Palaeolithic tools*; B, *Ghoranagi : neolithic celts and mace-head.* *See p. 9*

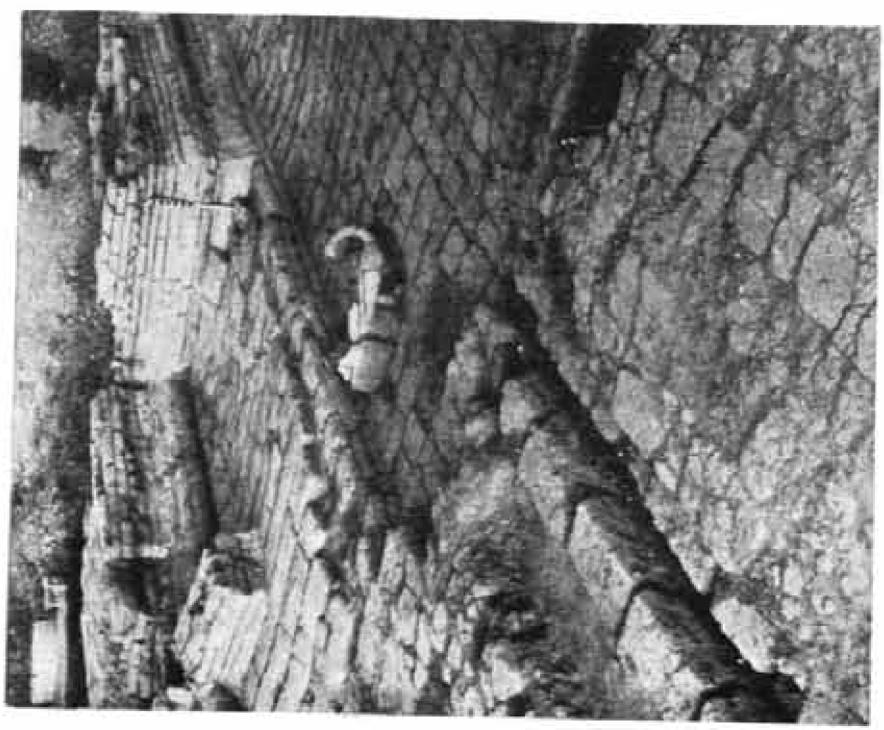


A

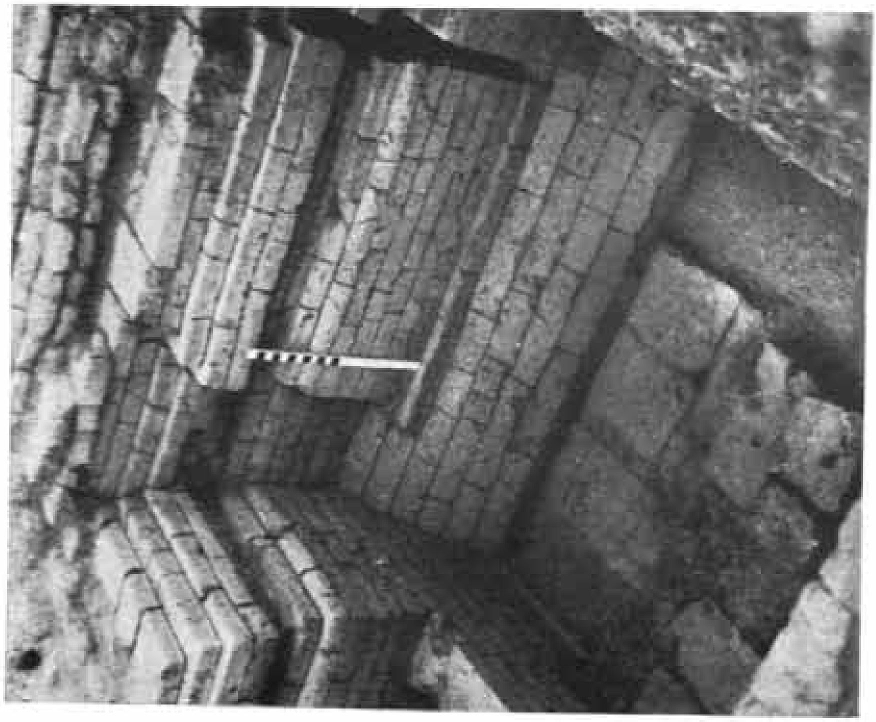


B

Champner : A, *exposed gateway* ; B, *rectangular tower*. *See p. 15*

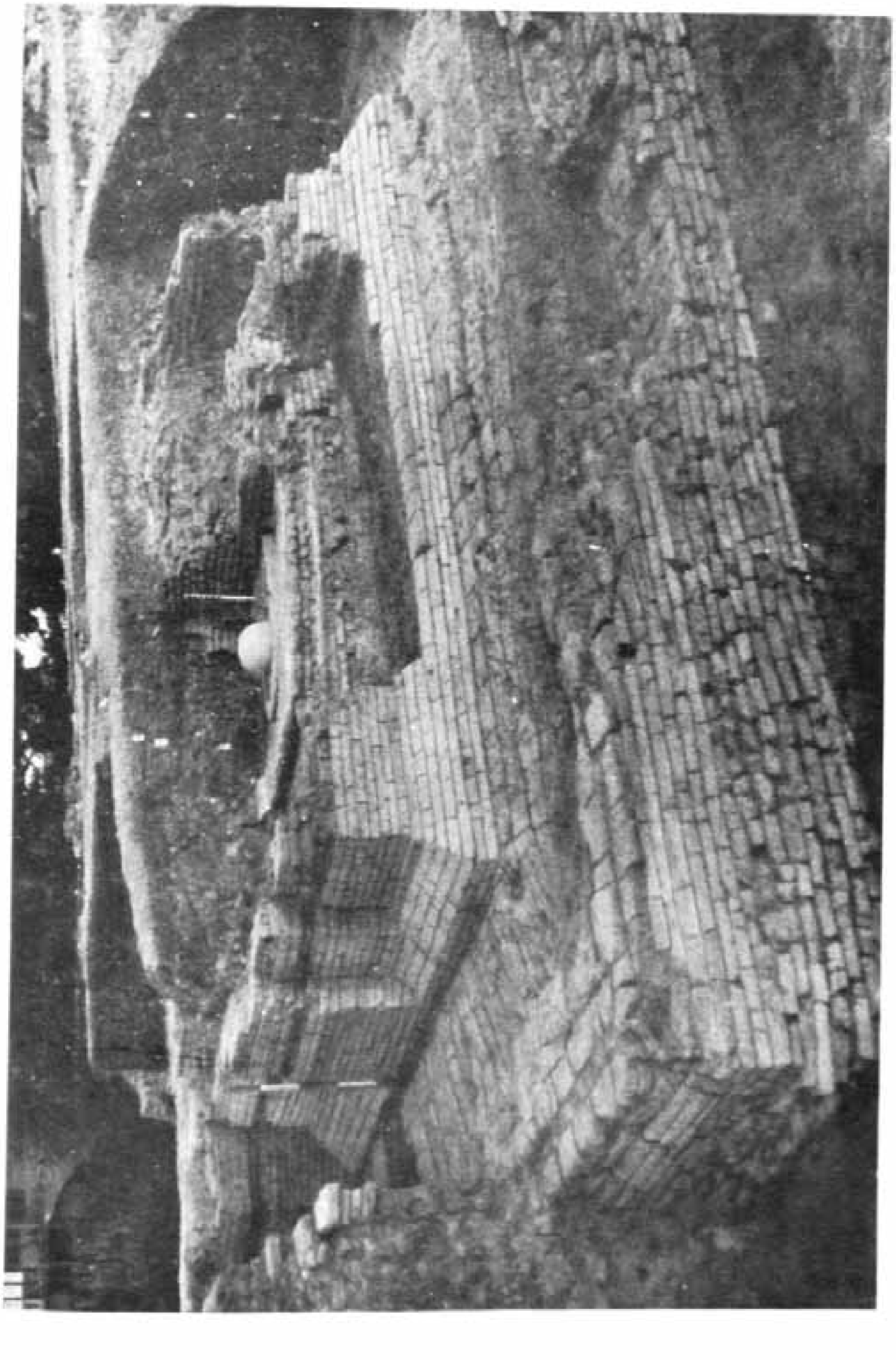


A

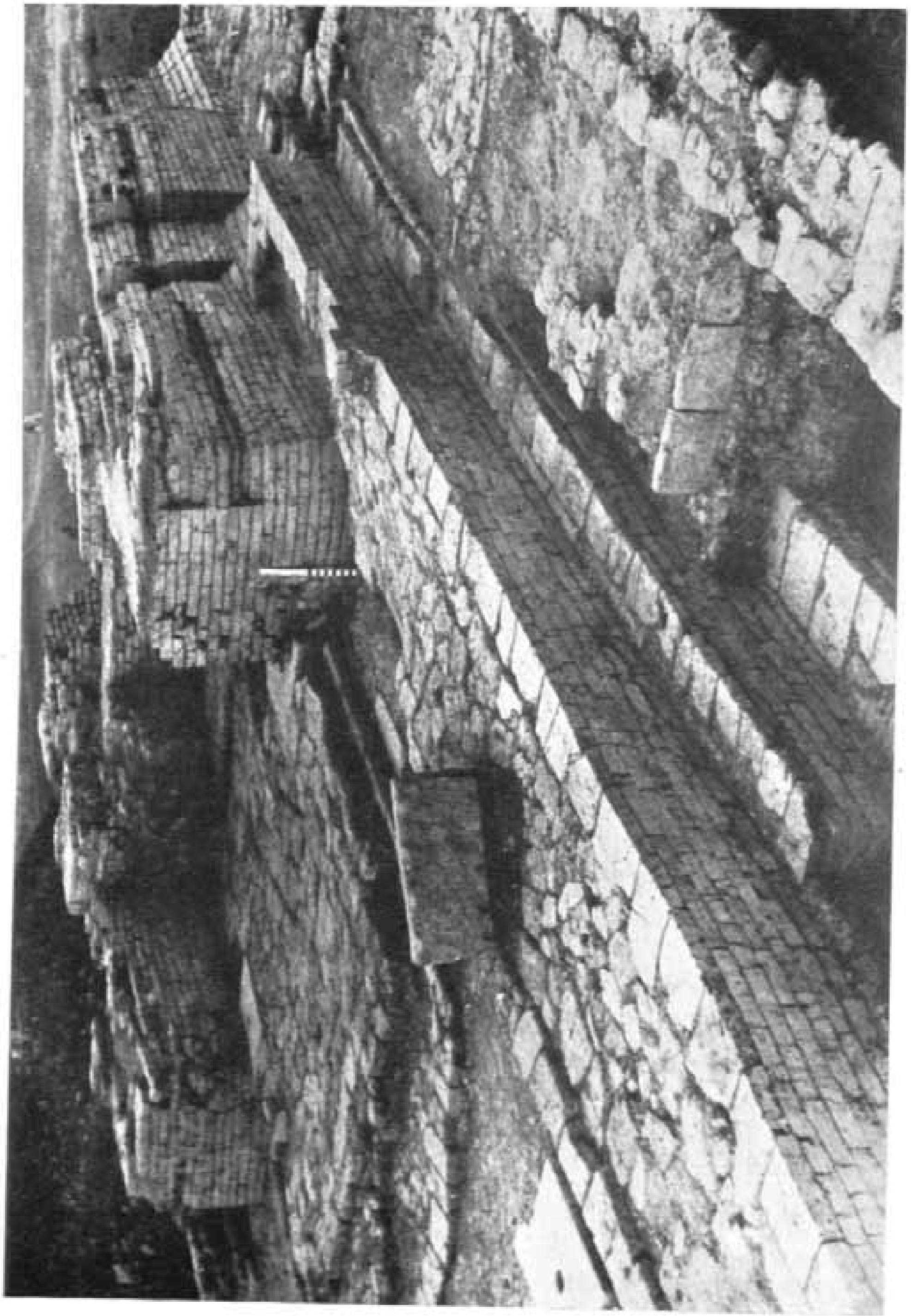


B

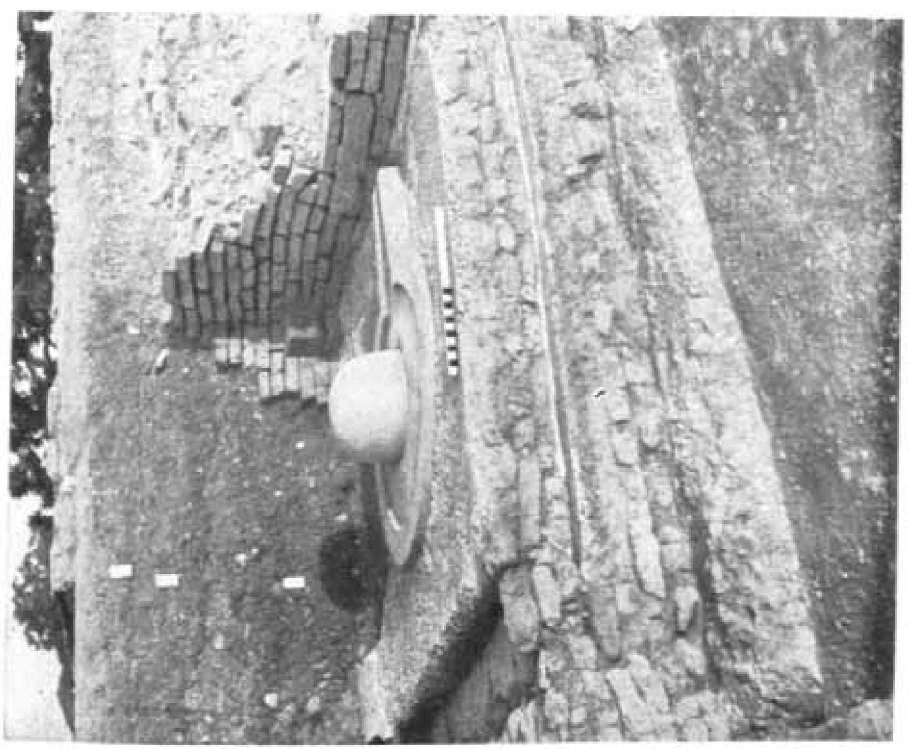
Karsan : A, *exposed northern wall and flooring with drain and soakage pit of Temple 1*; B, *a view showing details of offsets and corners of Temple 3.* *See p. 15*



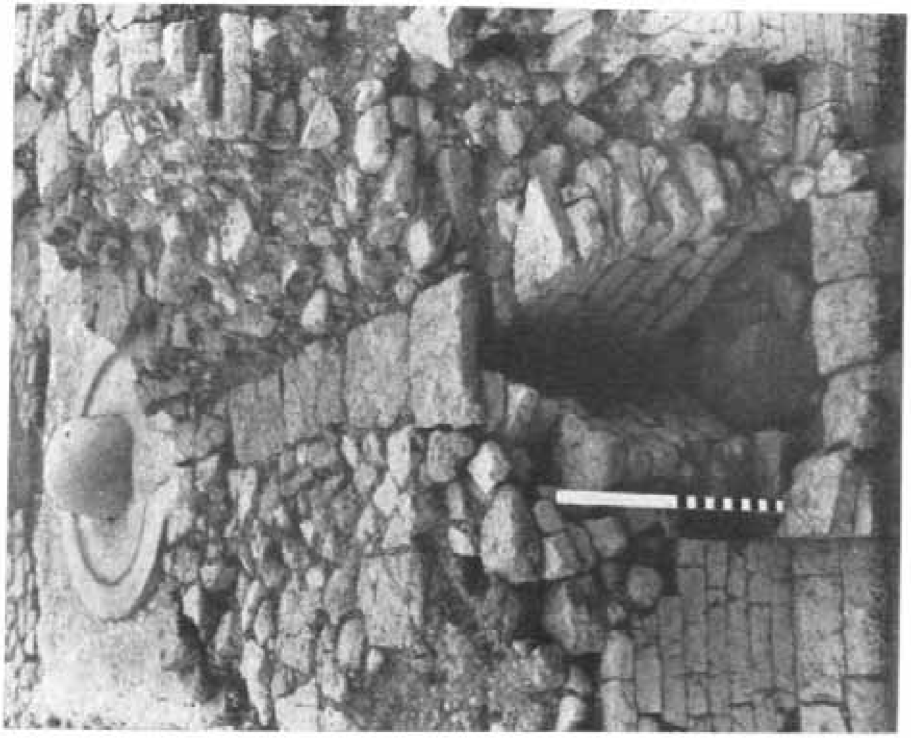
Karvan : view showing jagati, linga and offsets and corners of southern wall of Temple 3. *See p. 15*



Karvan : *general view of Temple 3.* *See p. 15*



A



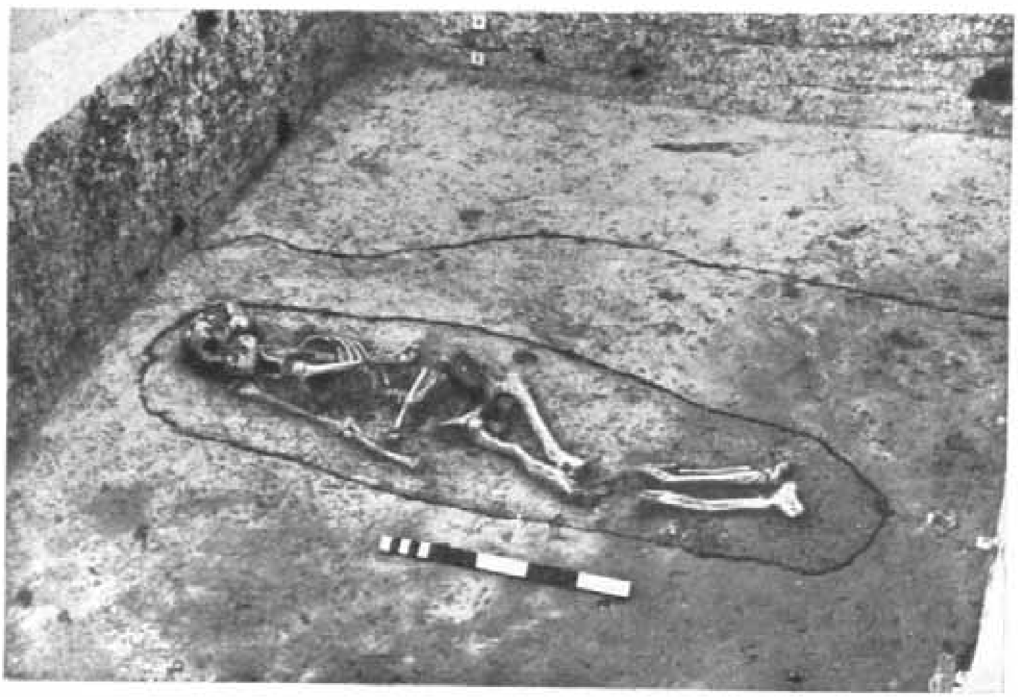
B

Karvan : A, *linga with yoni-patta set up on three successive floors*; B, *linga with covered drain and pranala, Temple 3.*

See p. 15.

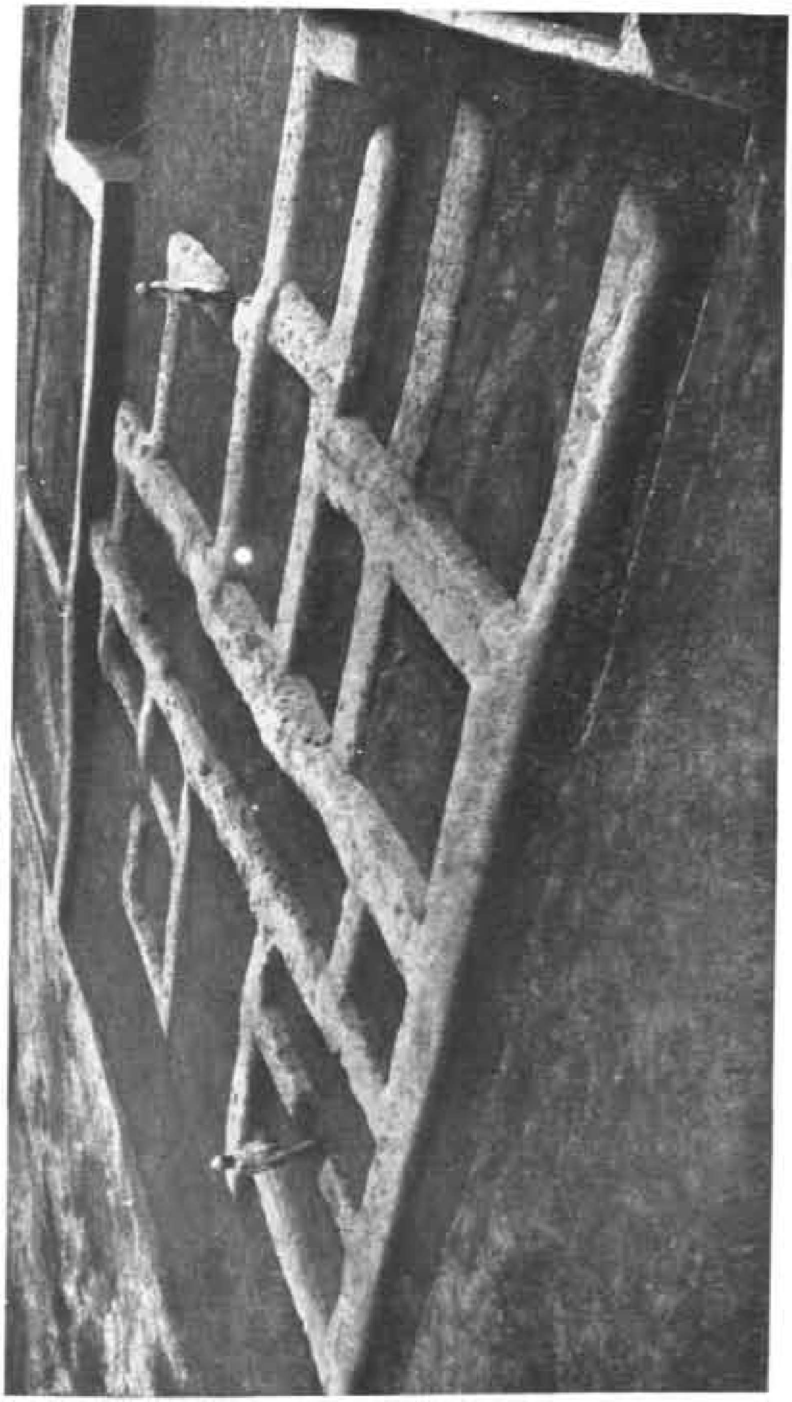


A



B

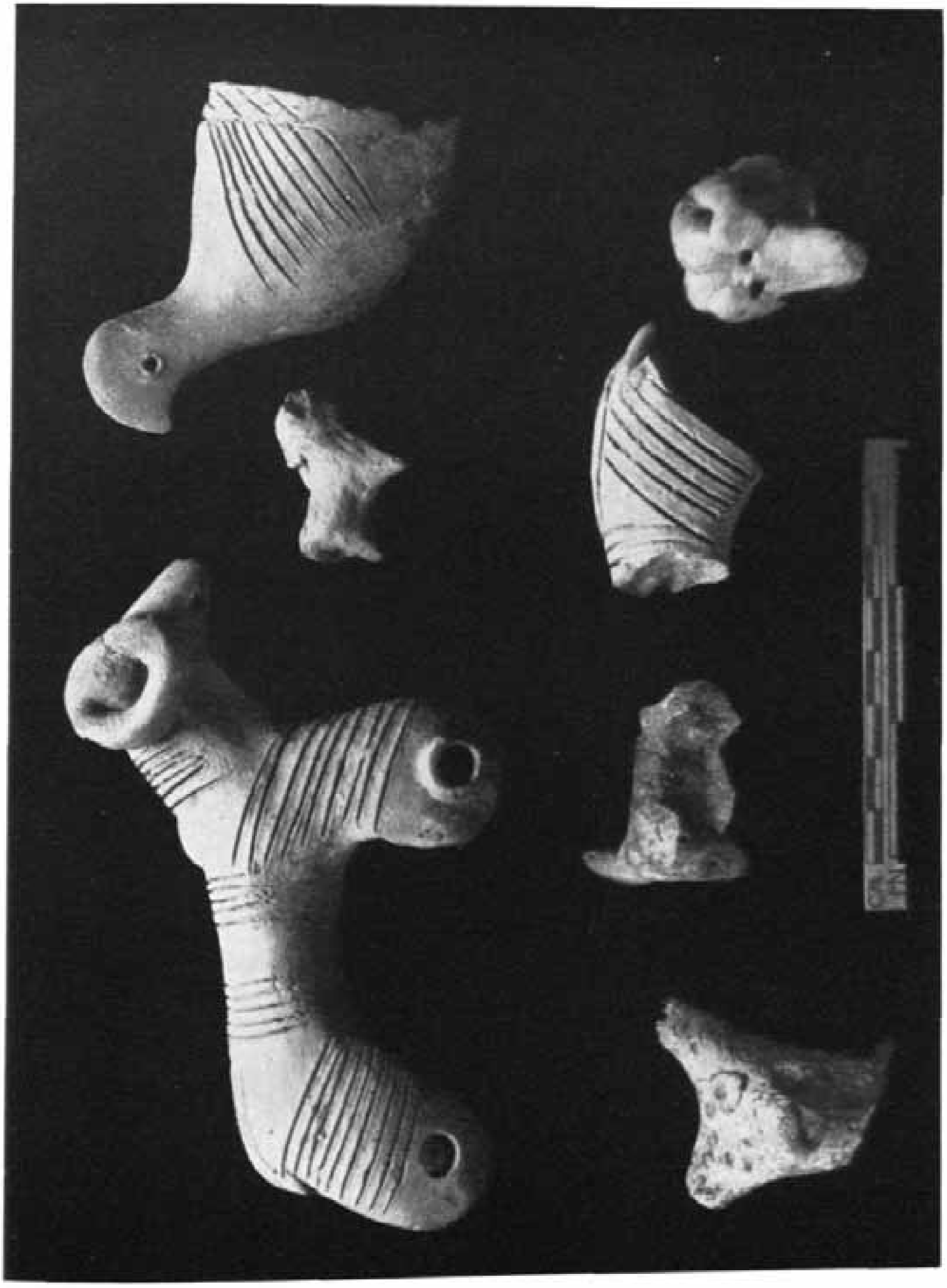
Bhagwanpura : A, *exposed oval structure, Period I B*; B, *grave-pit with skeleton, Period I B*. *See p. 17*



Bhagwanpura : view of a house-complex of mud-walls, Period IB. *See p. 17*



Bhagwanpura : Painted Grey Ware, Period IB. *See p. 17*



Bhagwanpura : terracotta animal figurines, Period IB. *See p. 17*

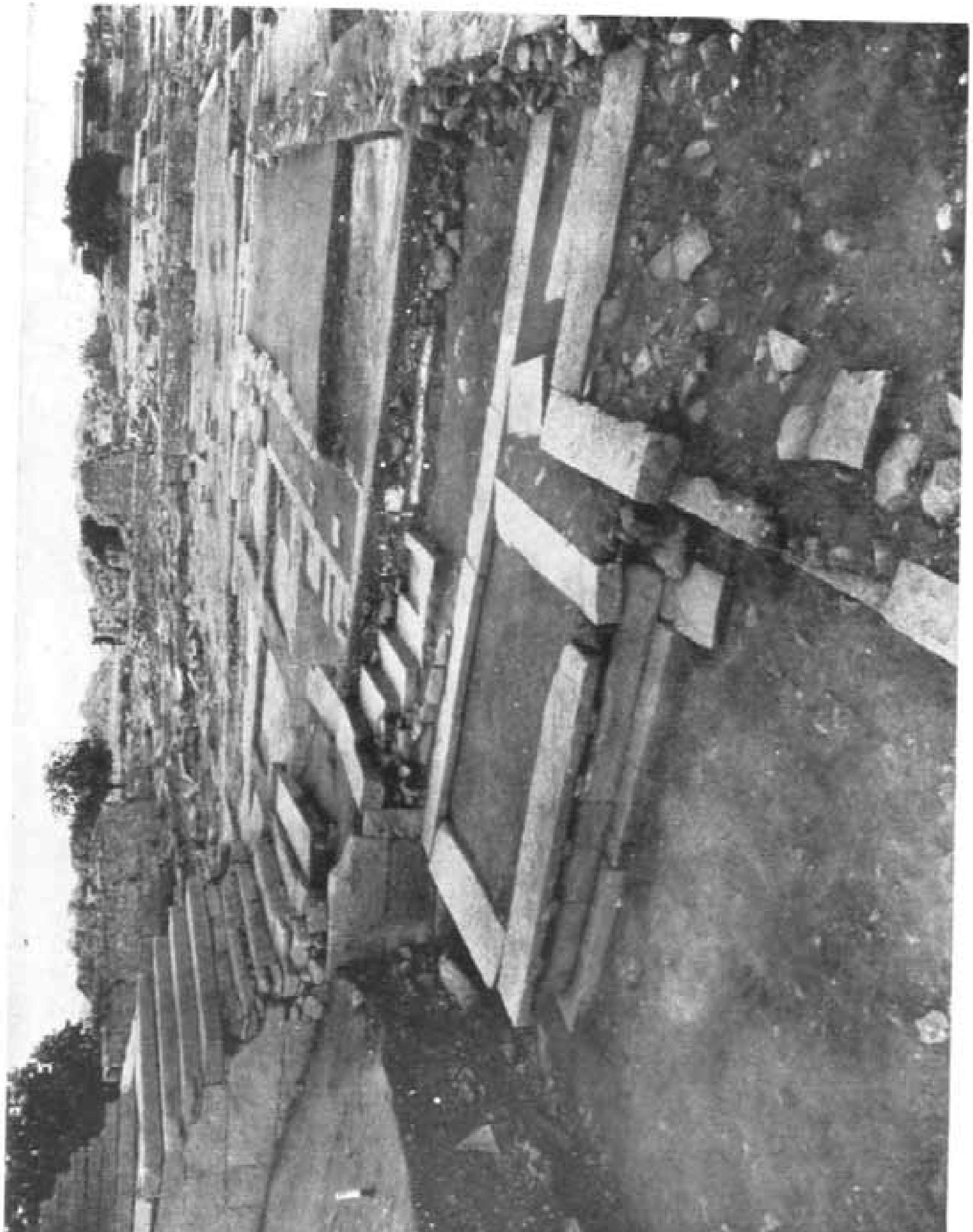


A

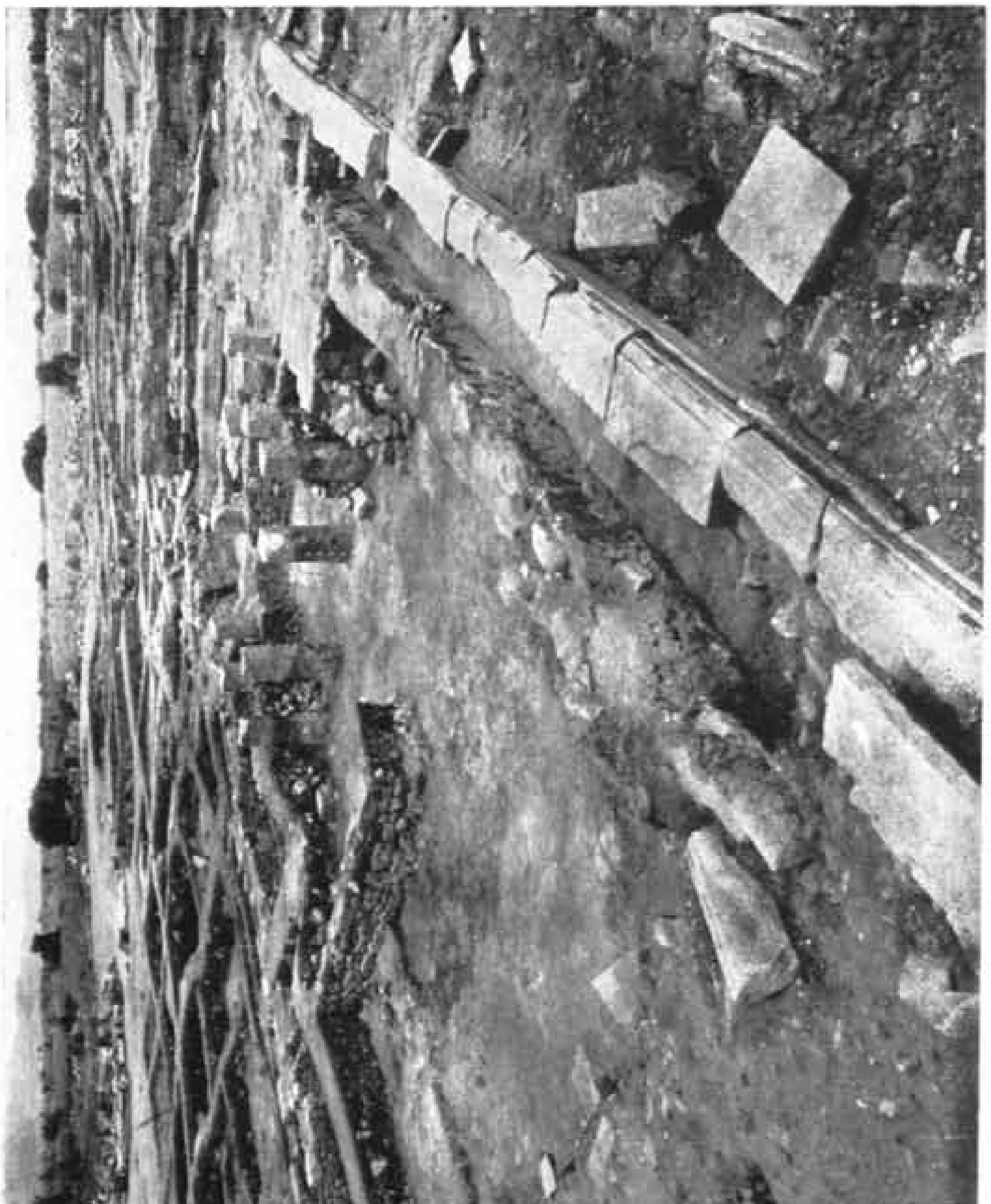


B

Hampi : A, *general view of the excavation*; B, *rectangular structure with a cistern*. *See p.* 20



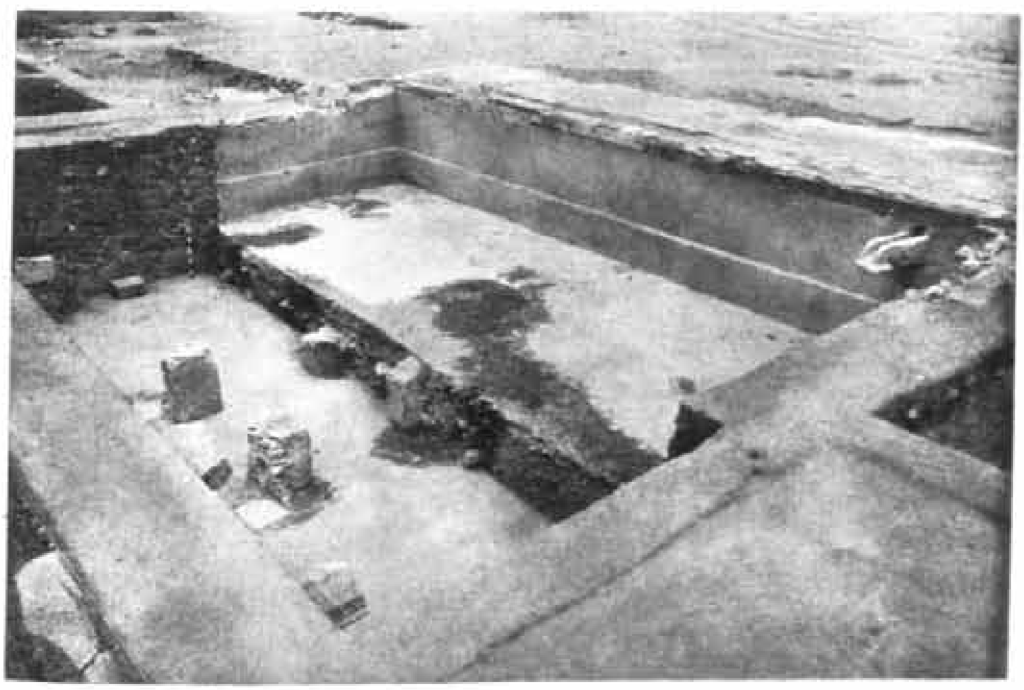
Hampi : exposed basement of a structure with steps leading to King's Audience Hall. See p. 20



Hampi : exposed pavilion with twelve monolithic pillars. *See p. 20*



A



B

Hampi : A, *exposed cistern of well-dressed stone masonry* ; B, *a huge tank in front of Mahanavami Dibba*, *See p. 20*

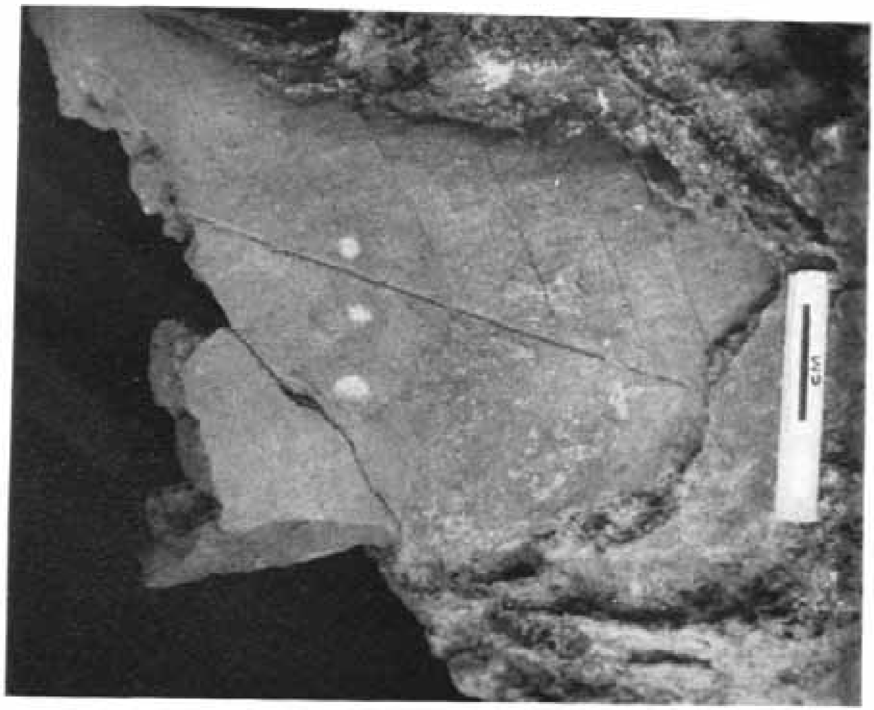


A



B

Hampi : A, *view showing two constructional phases of Mahanavami Dibba*; B, *a panel depicting hand-cuffed persons along with a horse led by a dwarf*. *See* p. *20*



B



A

Hunsgi : dicotyledonous and monocotyledonous leaf-impressions. *See p. 21*

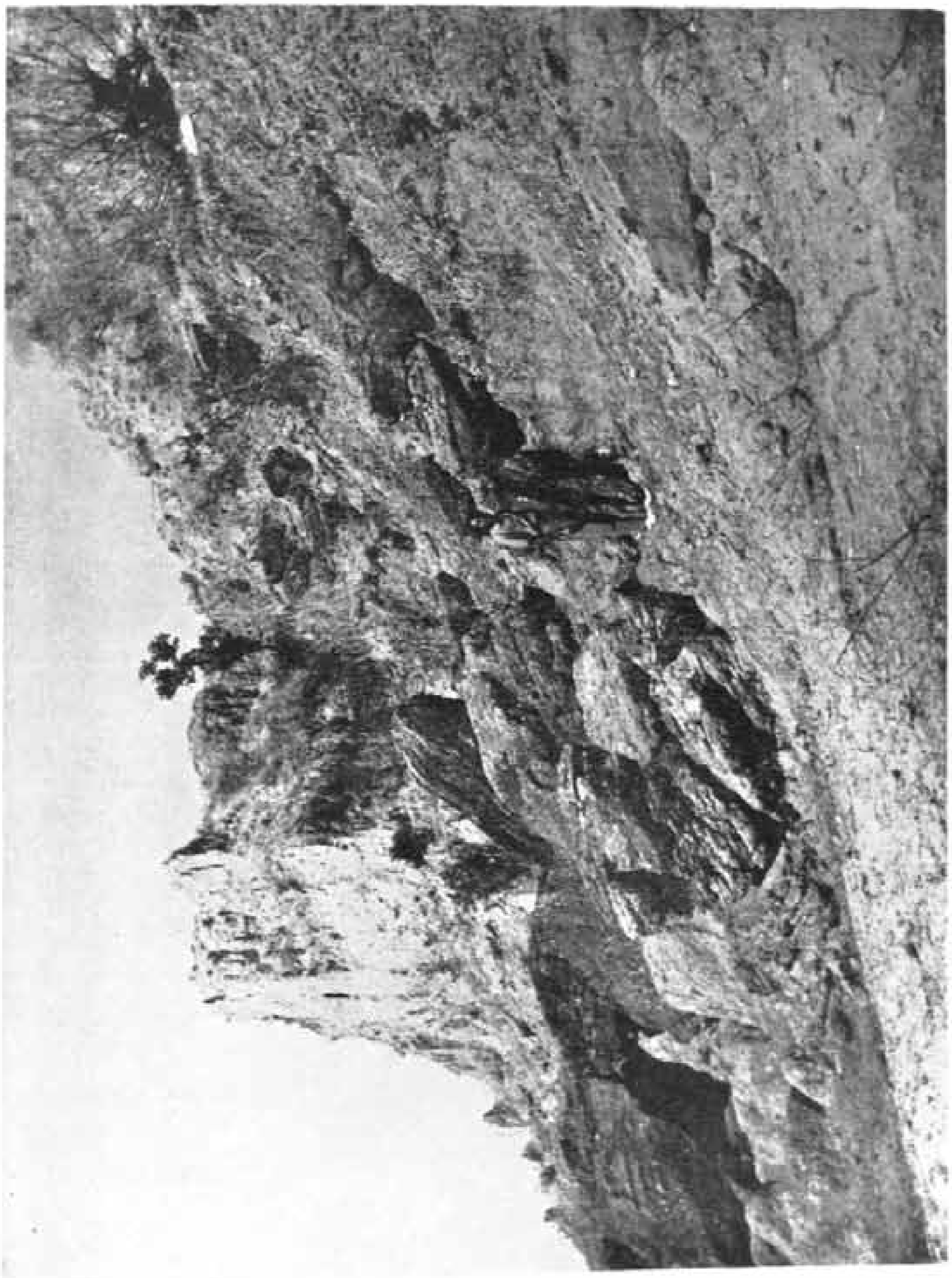


A

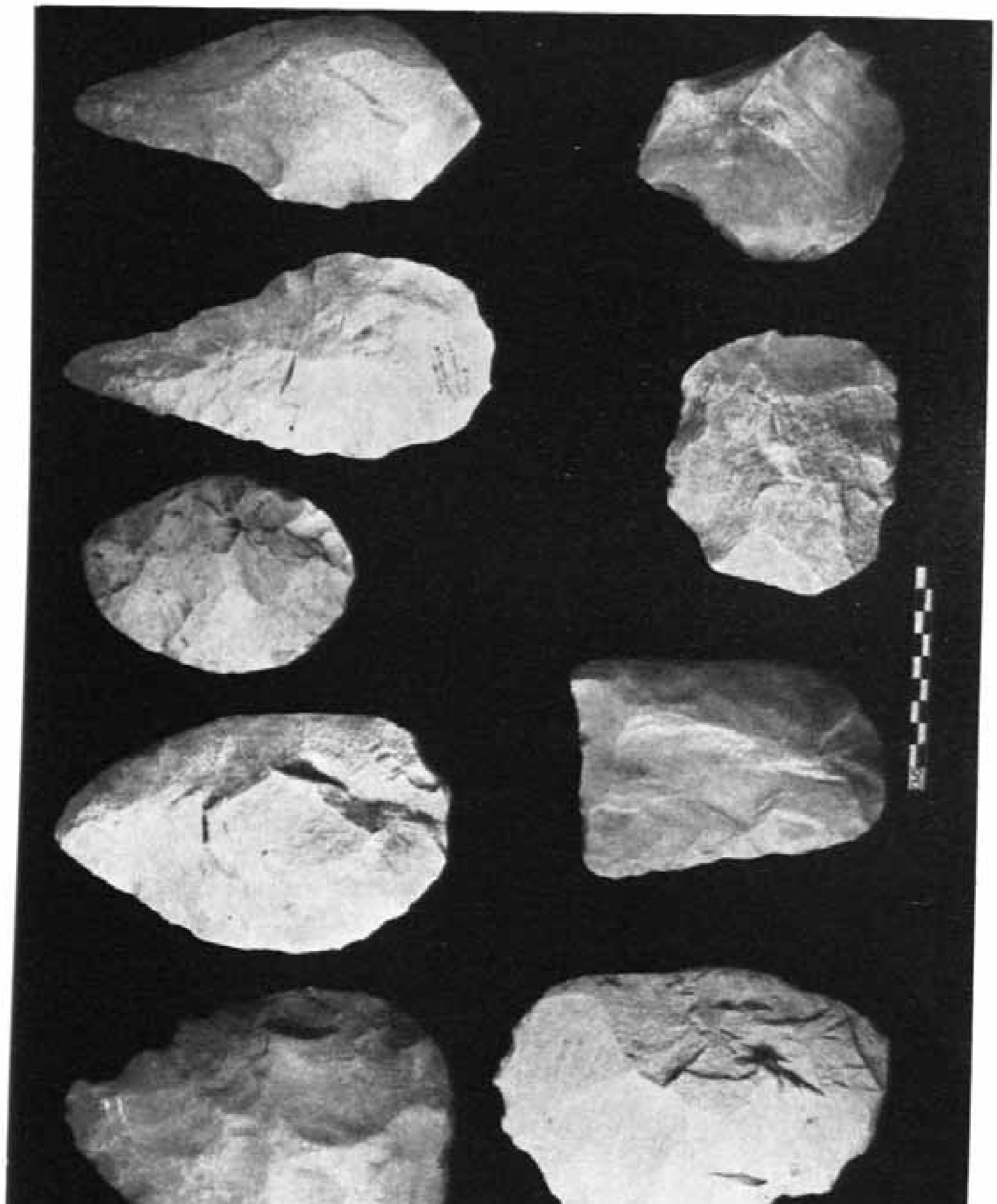


B

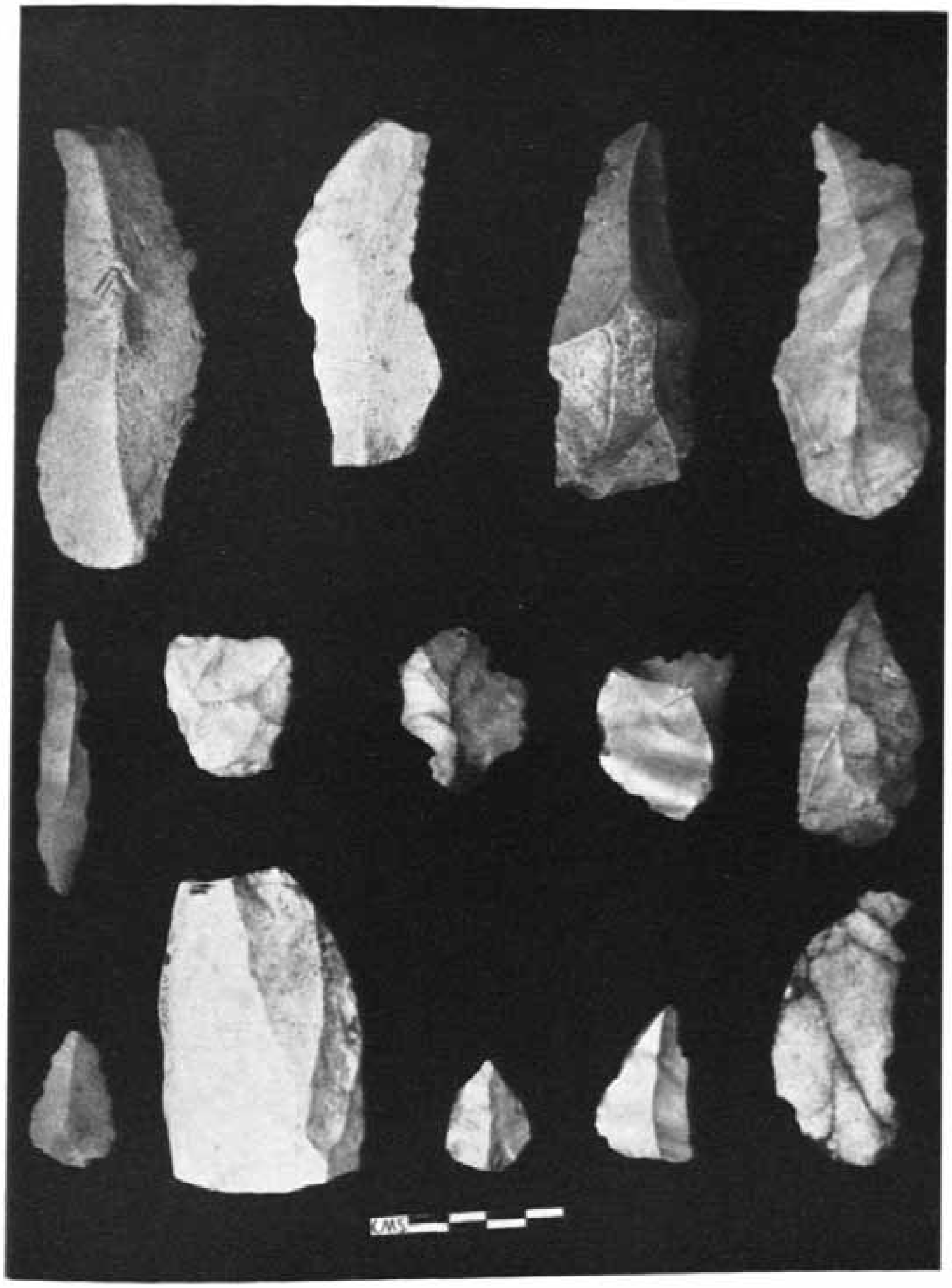
Bhimbetka : A, *exposed Acheulian floor*; B, *exposed burial, Mesolithic period.* *See p. 24*



Nakjhar Khurd : section of the river Son. *See p. 25*



Son valley : Lower Palaeolithic tools. *See p. 25*



Son valley : Upper Palaeolithic tools. *See p. 27*



A

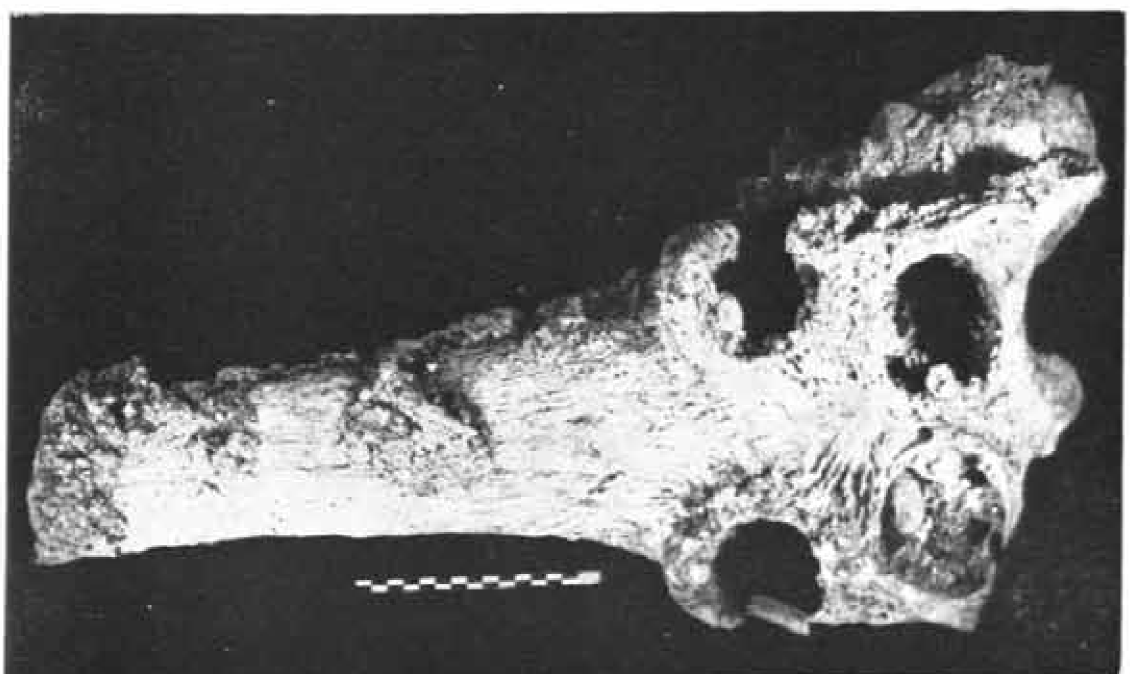


B

Son valley : A, *lower jaw of hippopotamus* ; B, [illegible]

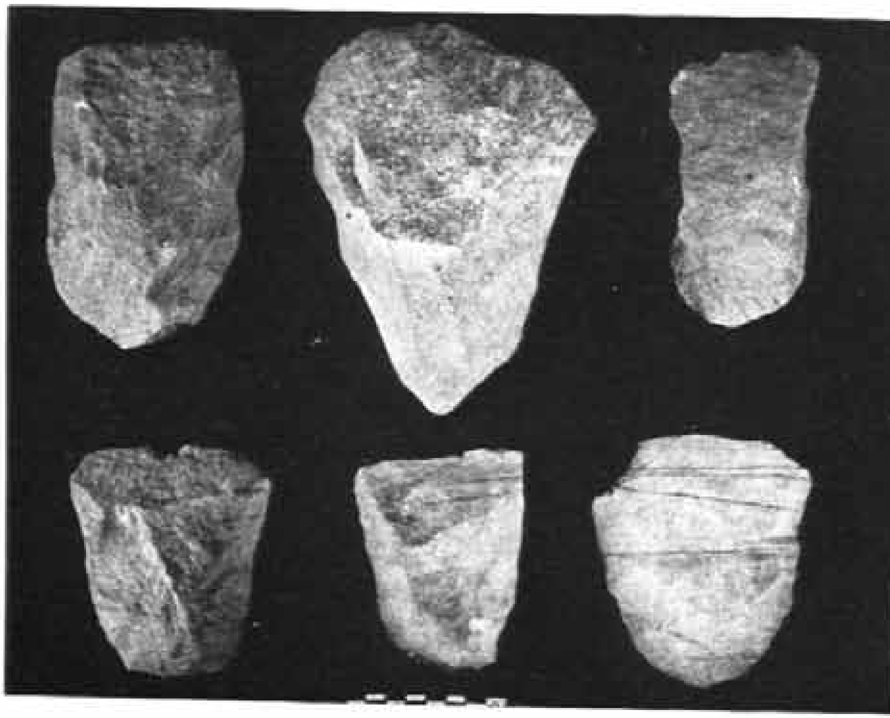


A

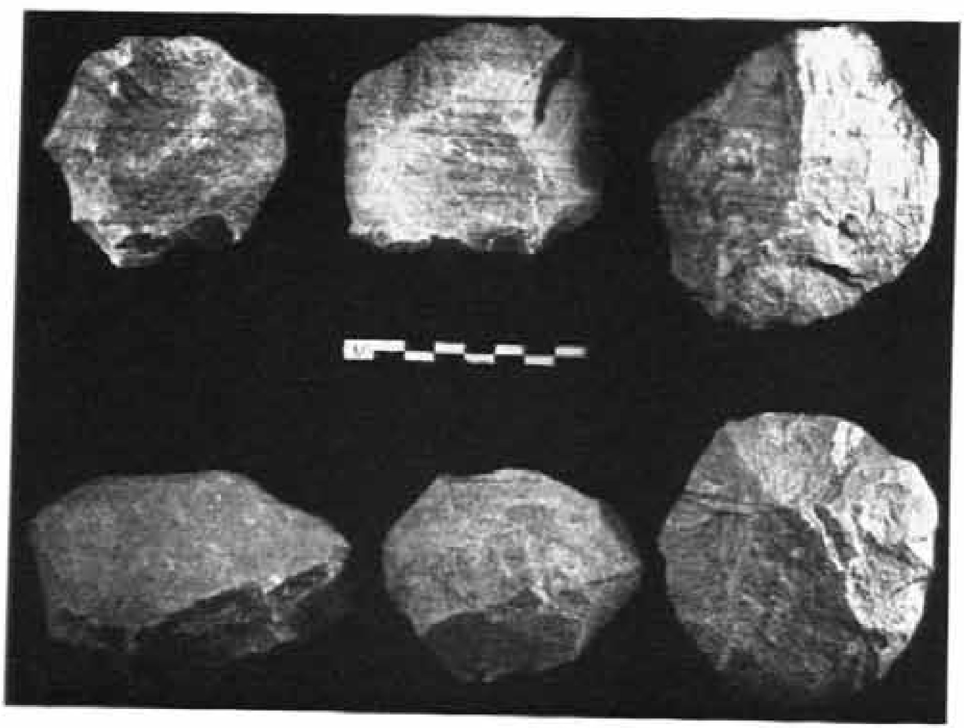


B

Son valley : A, jaw of *Equus* ; B, upper jaw of *Gavialis*. See p. 27



A

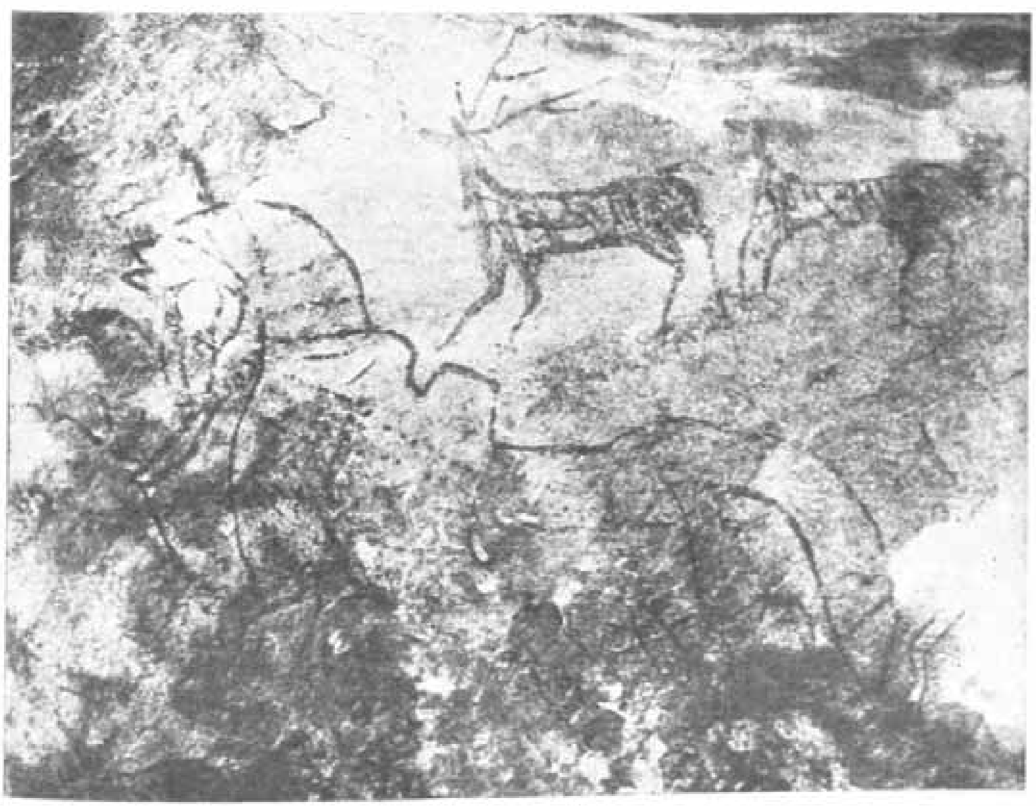


B

Maihar : A, *cleavers*; B, *scrapers*. *See p. 27*



A

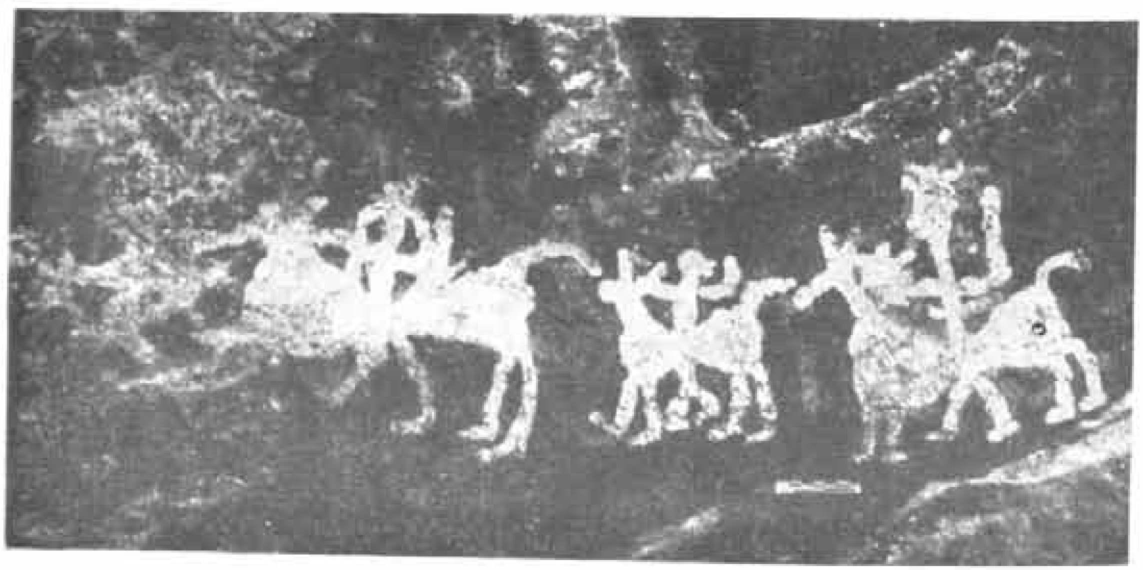


B

Paintings in rock-shelters at, A, *Joshipur and* B, *Unchakhera.* *See p. 29*

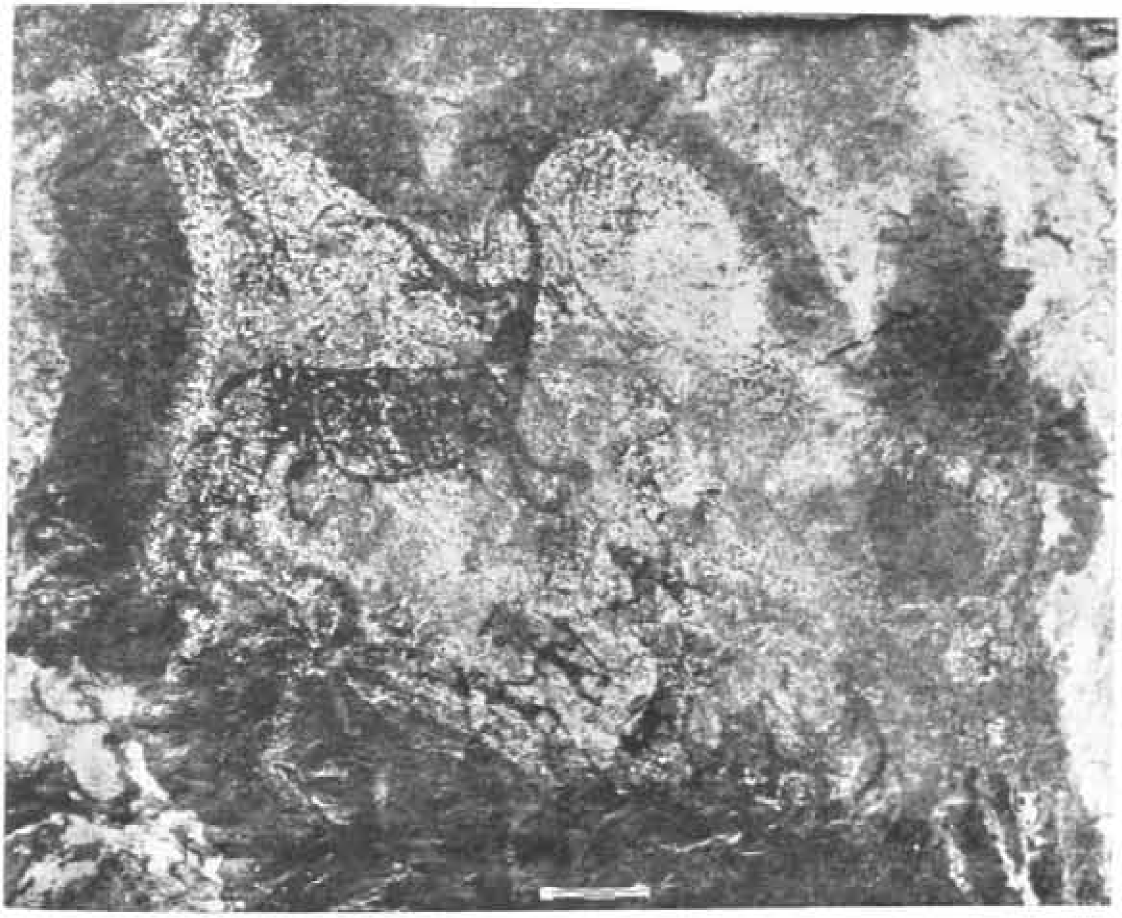


A

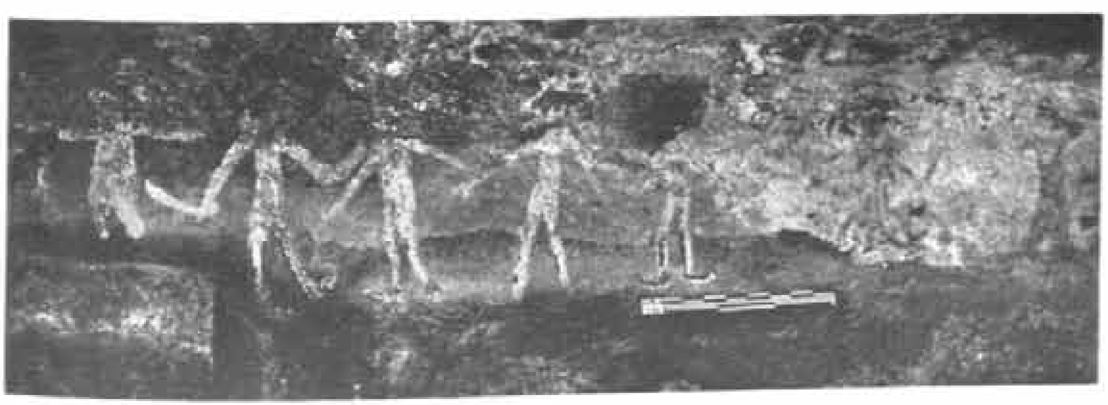


B

Bayan : paintings in rock-shelters. *See p. 29*



A



B

Pangoraria : A, *rock-painting of animals showing superimposition over an earlier painted surface* ; B, *rock-painting of dancing human figures*. *See p.* 29

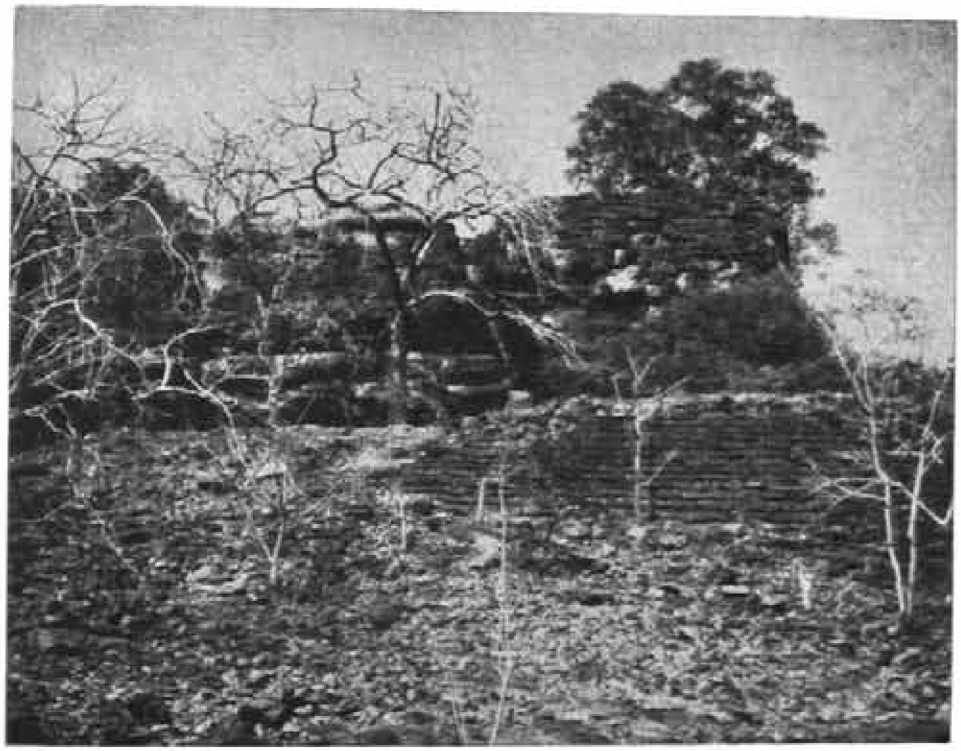


A



B

Pangoraria : rock-paintings showing horse-riders. *See p. 29*



A



B

Saru-Maru-ki-Kothadi : A, *general view of rubble-rivetment in front of cave*; B, *rubble stupa on the hill-top*. *See p.* 29



A



B

Talpura : A, *view of smaller stupa*; B, *steps leading to stupas on the hill-top from rock-shelters.* *See p. 30*



A



B

Talpura : A, *view of ancient paved-pathway leading to stupas* ; B, *inscription from the village.* *See p.* 30

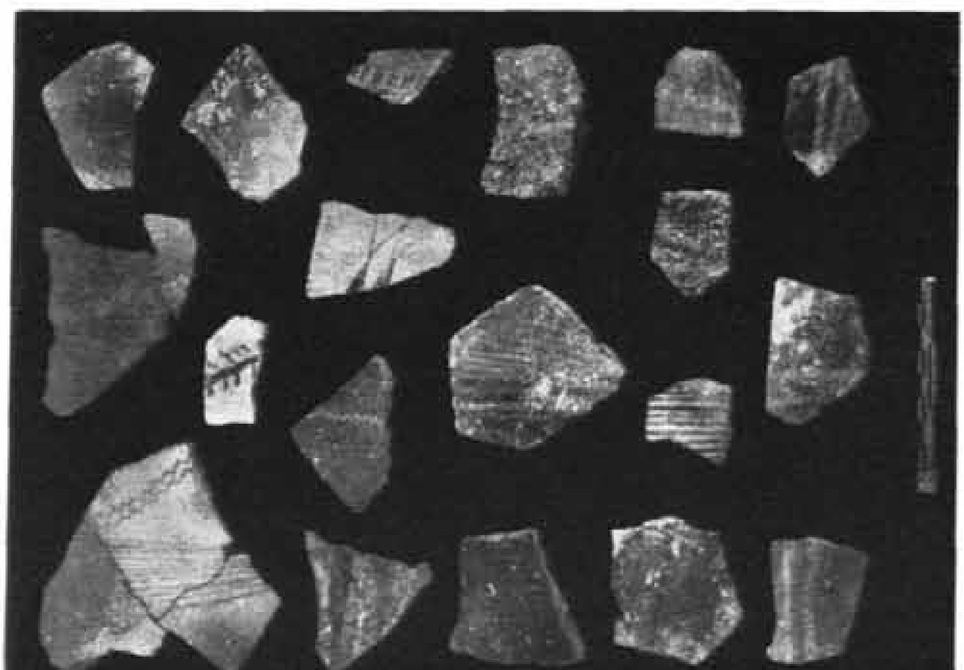


A

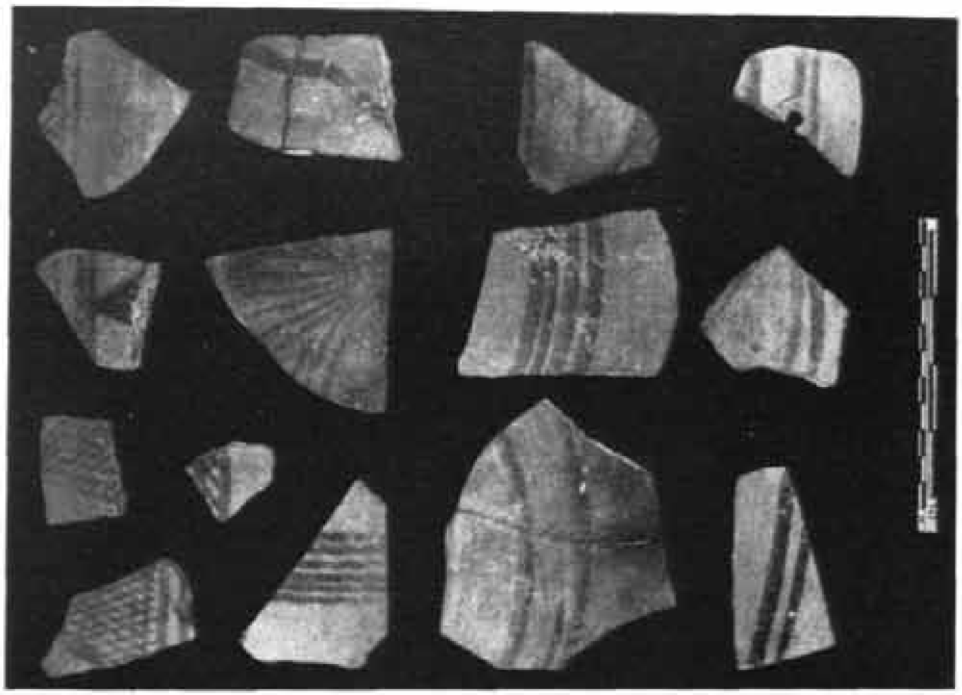


B

Besnagar : exposed structures of different phases. *See p. 31*

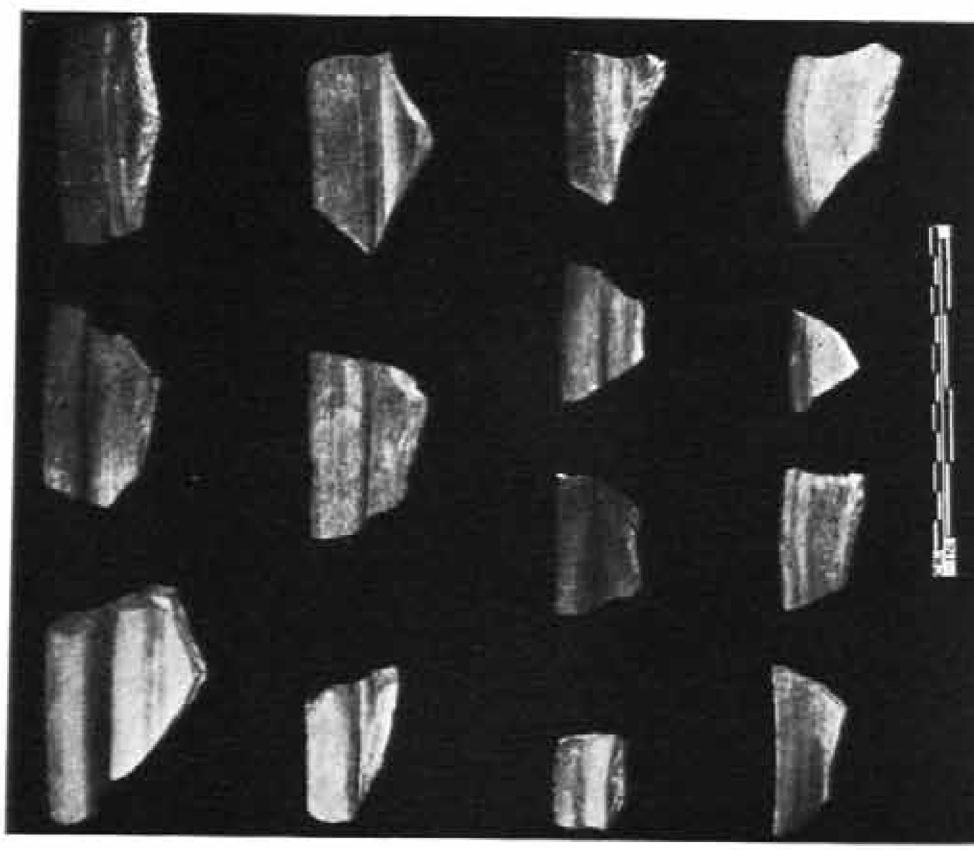


A

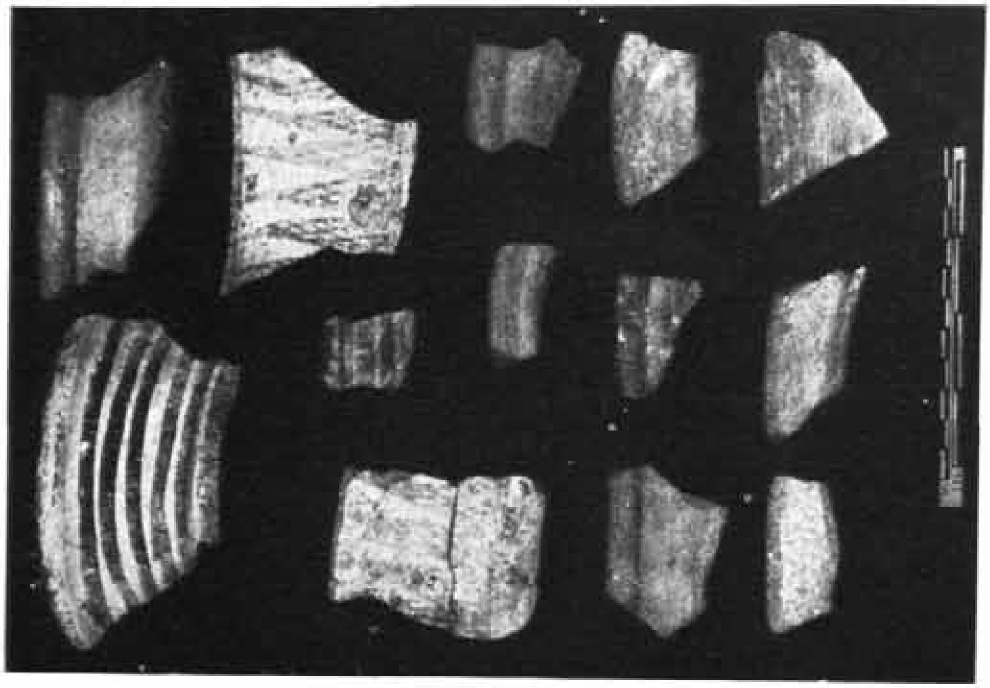


B

Daimabad : A, *painted pottery of Savalda ware, Phase I*; B, *Late Harappan pottery, Phase II*. *See p.* 32



A

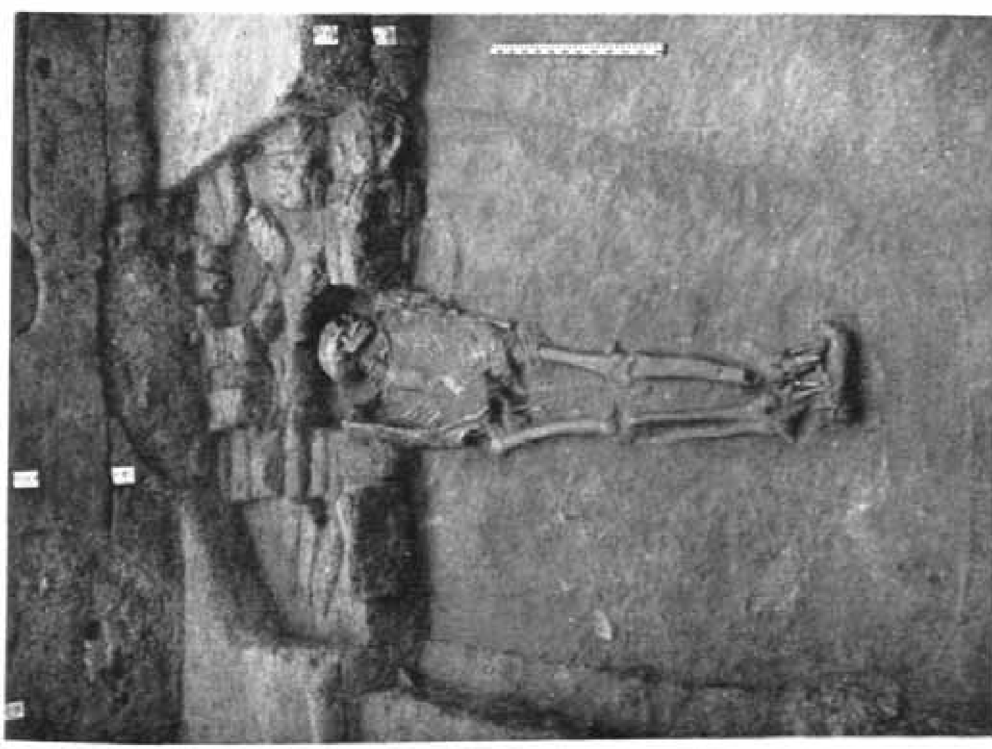


B

Daimabad : A, *Late Harappan pottery, Phase II*; B, *pottery of cream and buff ware, Phase III.* *See p.* 32



B

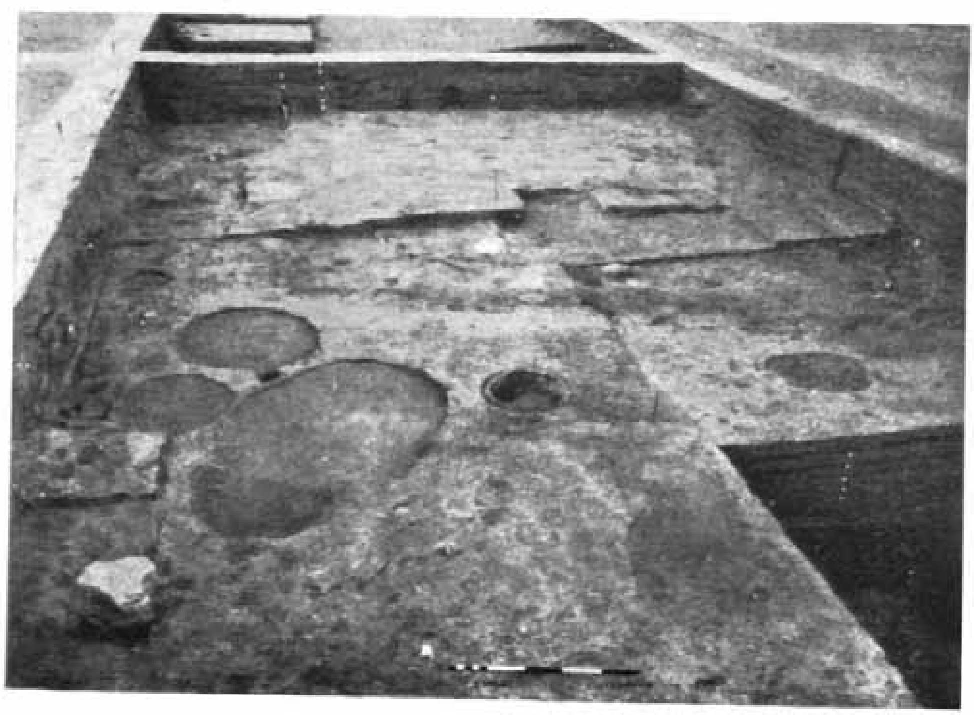


A

Daimabad : A, *burial of Phase II*; B, *burial of Phase V.* *See pp.* 32-33



A

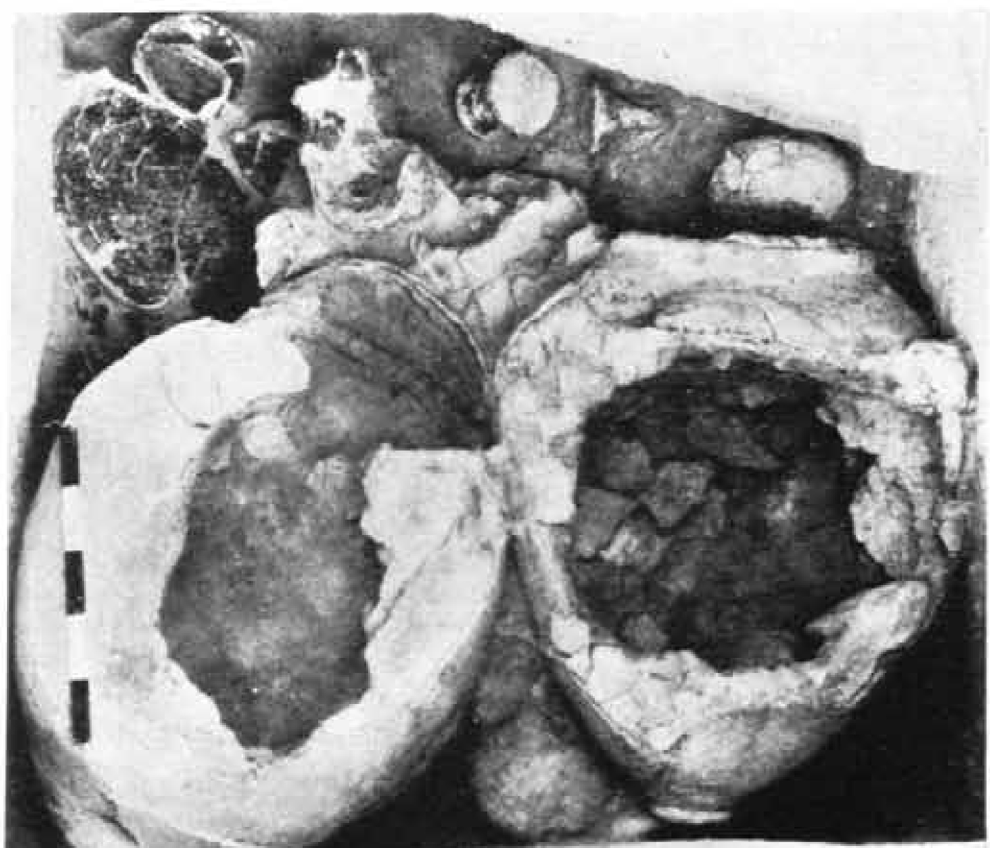


B

Daimabad : A, *view showing mud-strips, Phase V*; B, *house-complex of Phase* V. *See p. 33*



A



B

Sittannavasal : A, *view of exposed Megalith III*; B, *close view of urns interred.* *See pp. 40-41*

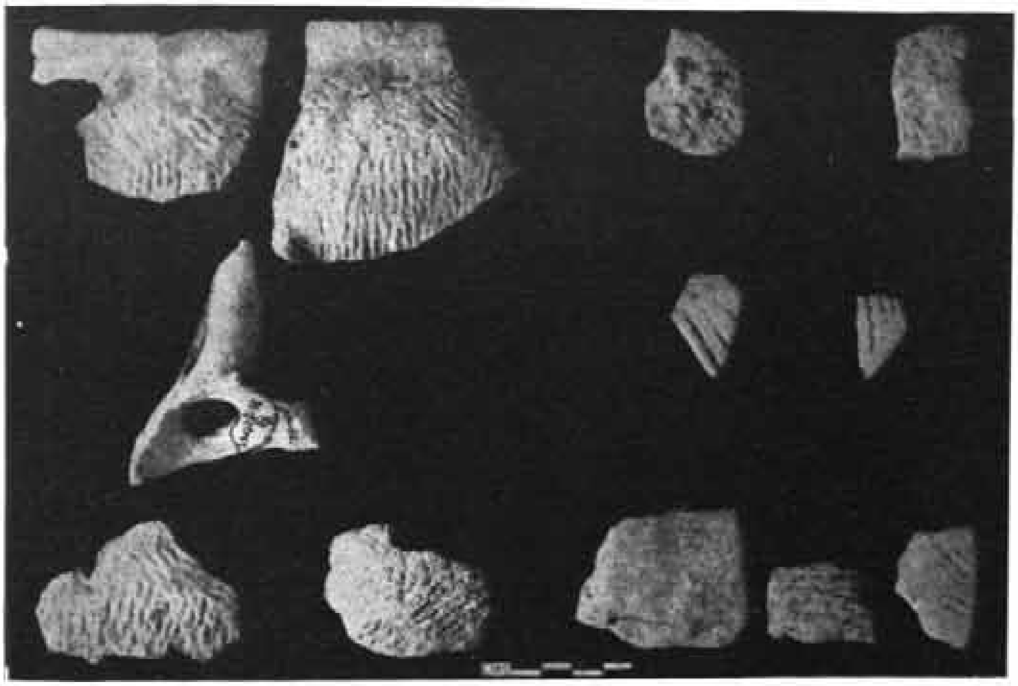


A

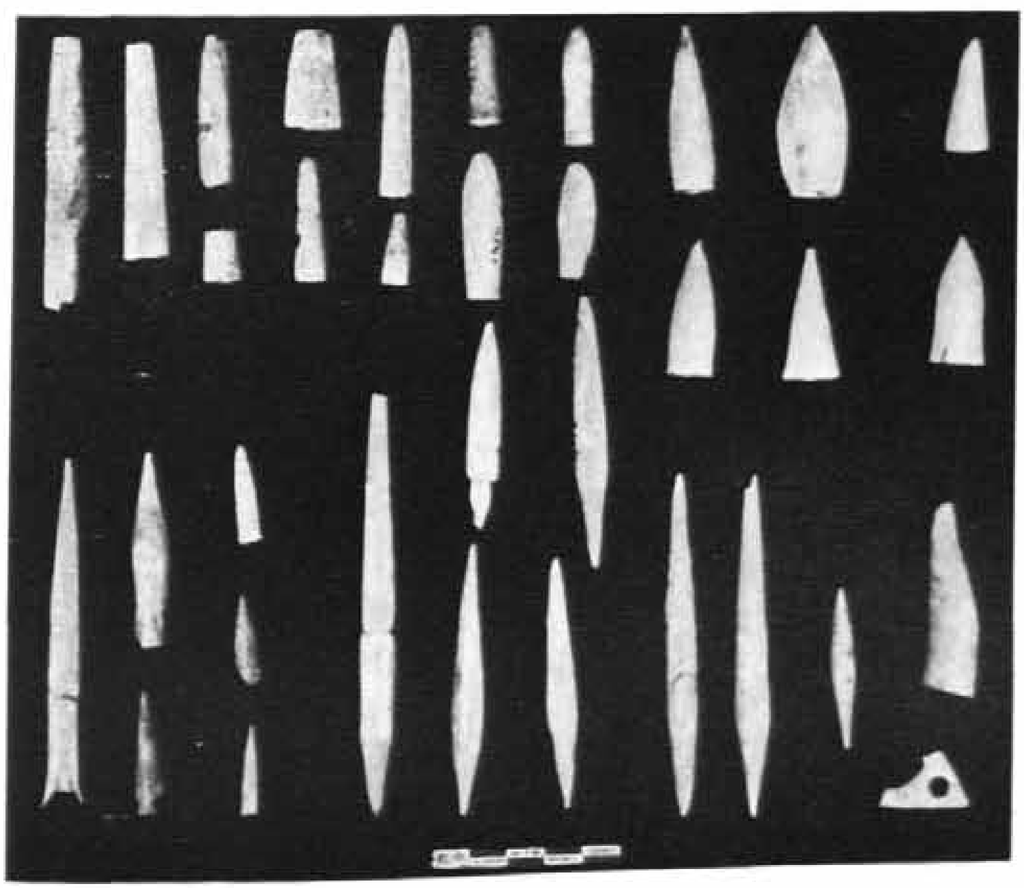


B

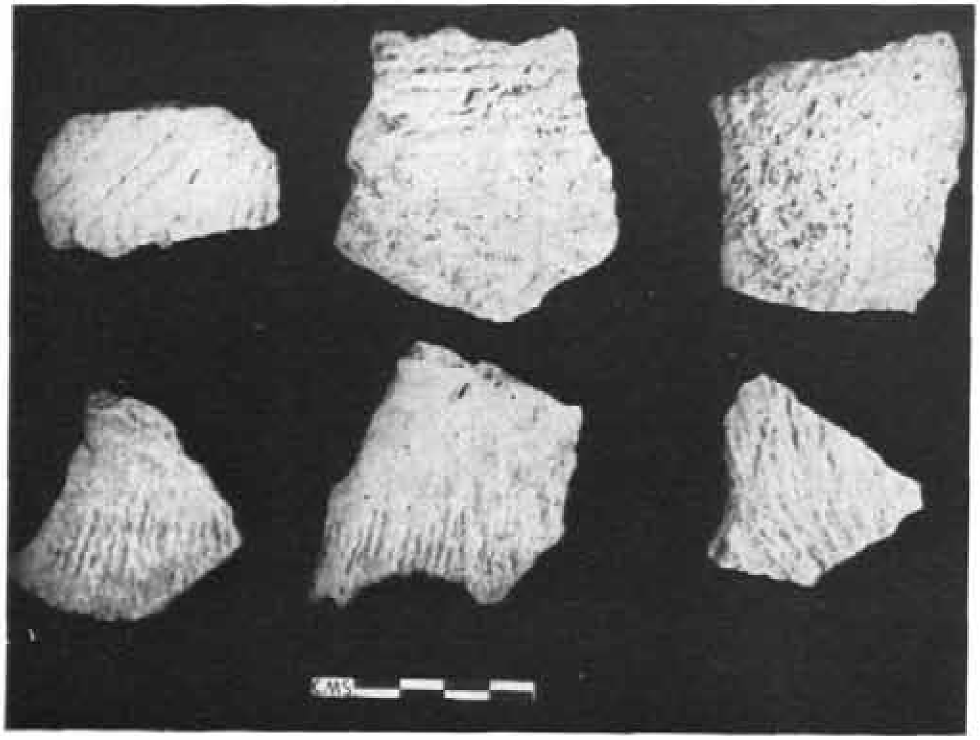
Sittannavasal : A, *view of exposed transepted cist, Megalith IV*; B, *interments within the cist.* *See p. 41*



A



B



A

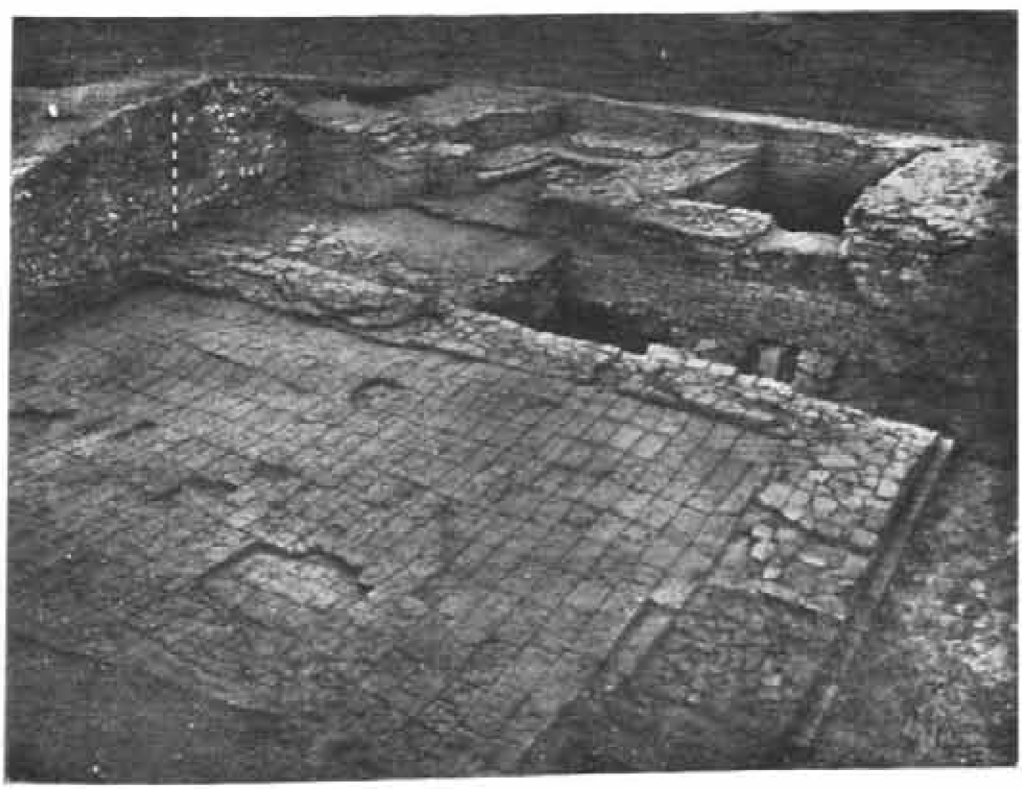


B

Mahagara : A, *corded and rusticated wares*; B, *burnt daubs with wattle impressions*. *See p. 47*



A



B

Ganwaria : A, *larger structural complex showing five phases*; B, *smaller structural complex showing brick-paved courtyard*, *See pp. 47 and 49*



A



B

Ganwaria : A, *exposed secular complex north of larger complex*; B, *exposed Shrine no.* 2. *See p.* 49



B



A

Ganwaria : A, Buddha head; B, Buddha in dhyana-mudra, both in terracotta. See p. 50



A

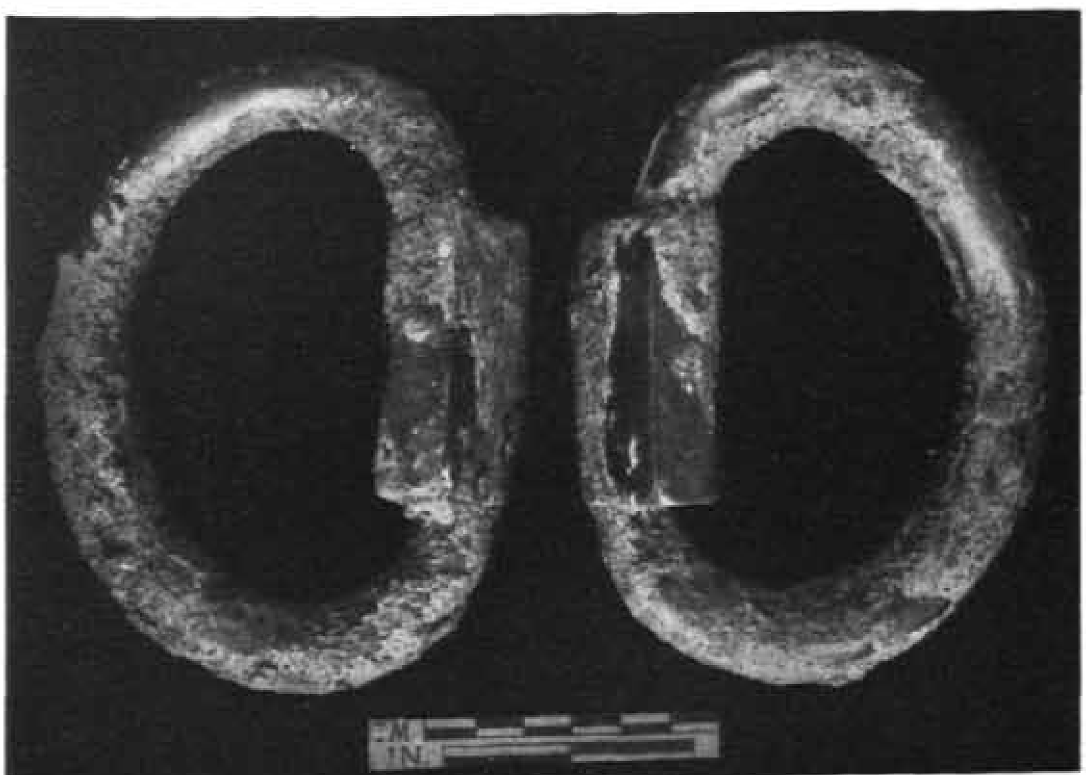


B

Ganwaria : A, *terracotta female figurines*; B, *decorated stone disc*. *See p.* 50



A



B

Ganwaria : A, *terracotta dancing figurines*; B, *anklets of copper alloy. See p. 50*

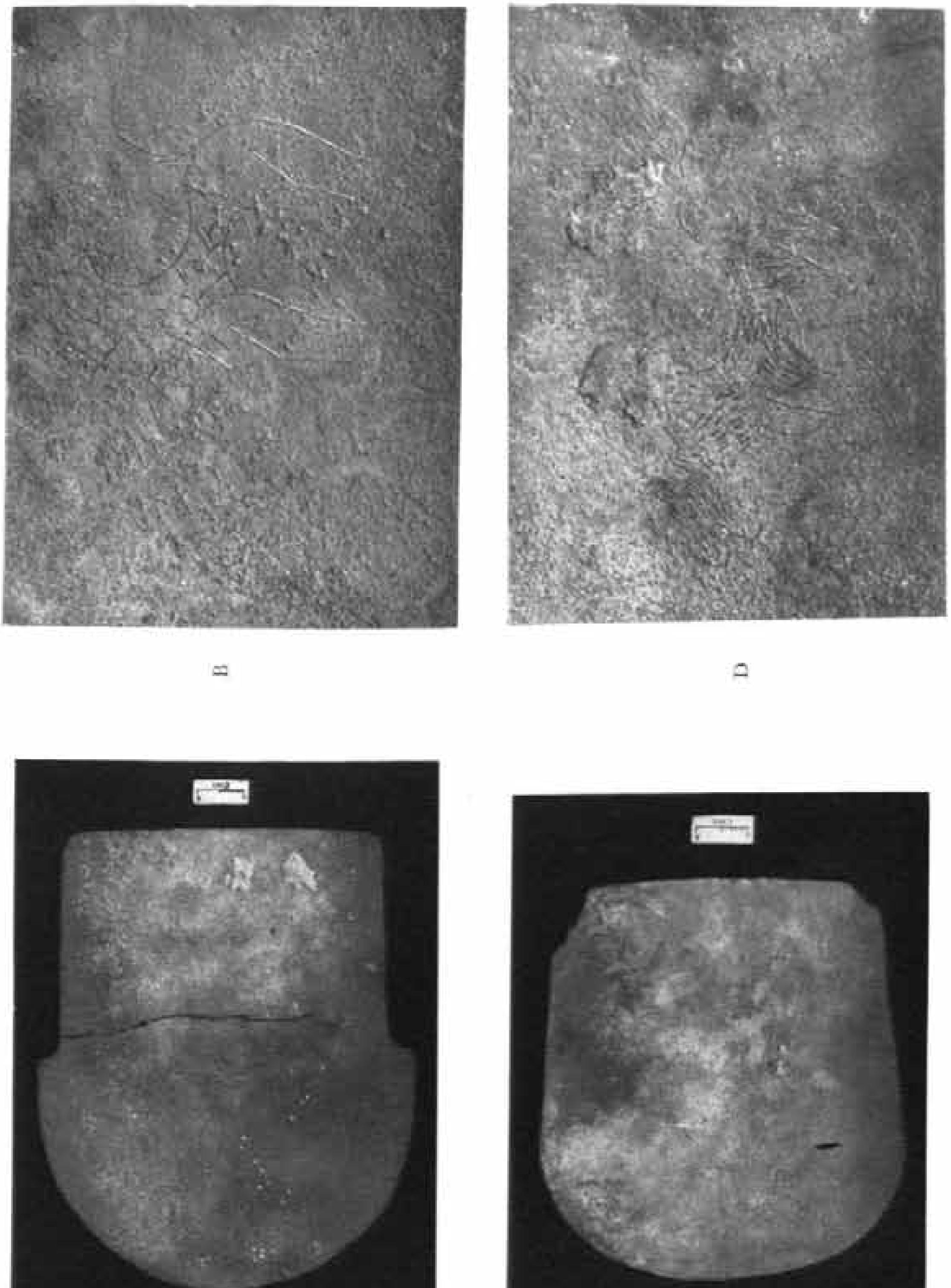


A



B

Ganwaria : *terracotta figurines*, A, *three-eyed head* (*Siva*) ; B, *head with a peculiar head-dress*. *See p.* 50

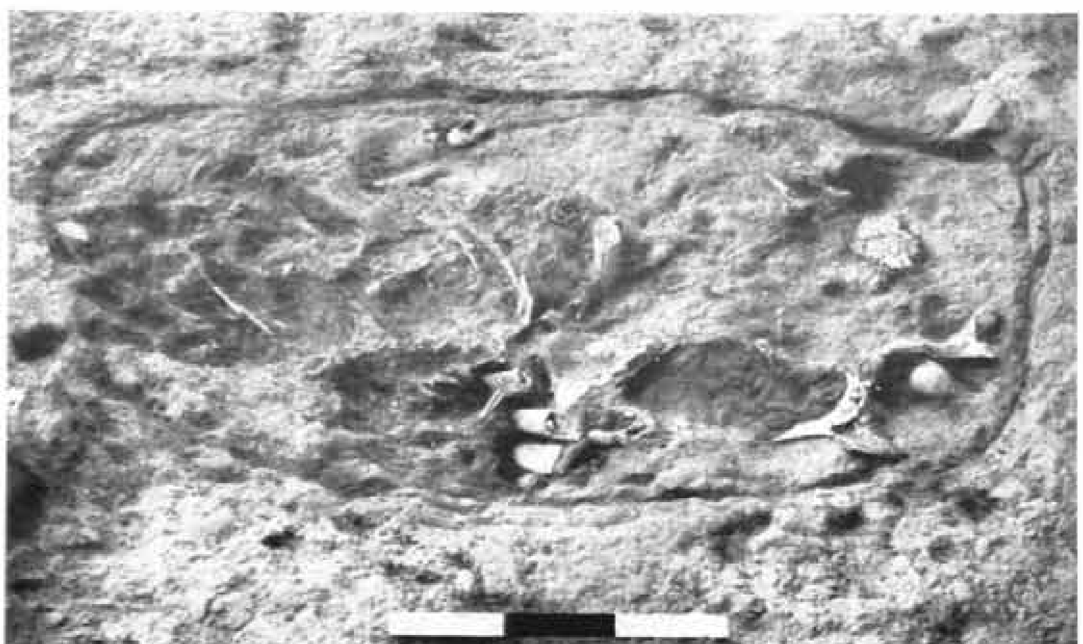


A B C D

Madnapur : two copper axes with incised design of bulls. *See p. 52*



A



B

Mathura : A, *mud-flooring with post-holes, Period II*; B, *pit with animal bones, Period IV*. *See p. 55*



A



B

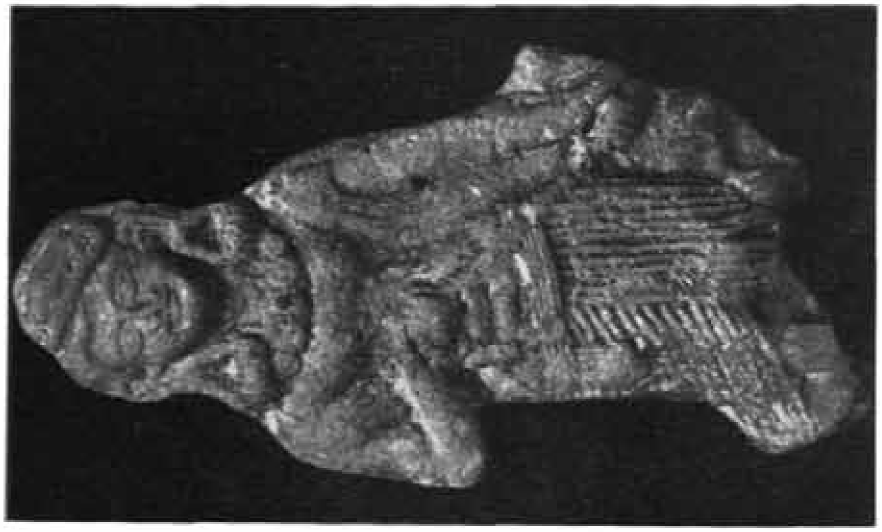
Mathura : A, *mud-platform with baked-brick facing, Period II*; B, *view of tank-complex, Period IV*. *See p. 55*



A



B



C

Mathura : *terracotta figurines*, A, *lute player*, *Period III*; B, *mother and child*, *Period IV*; C, *a prince*, *Period IV*. *See p. 55*



B



A

Mathura : terracotta figurines, A, *mould and impression of yakshi, and* B, *a Saka or Kushan soldier, obverse and reverse views, Period IV.* *See p. 55*

C



A



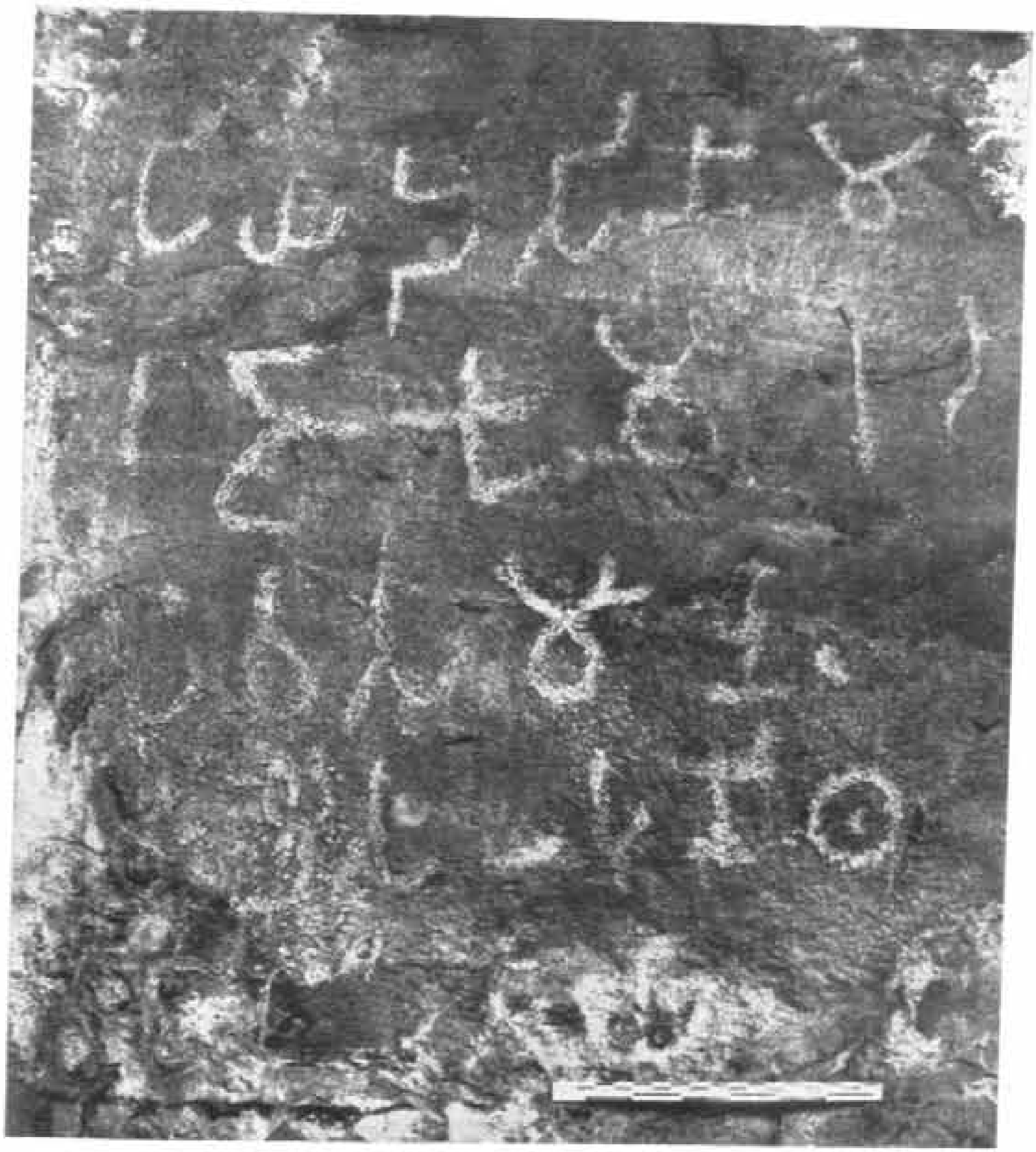
B



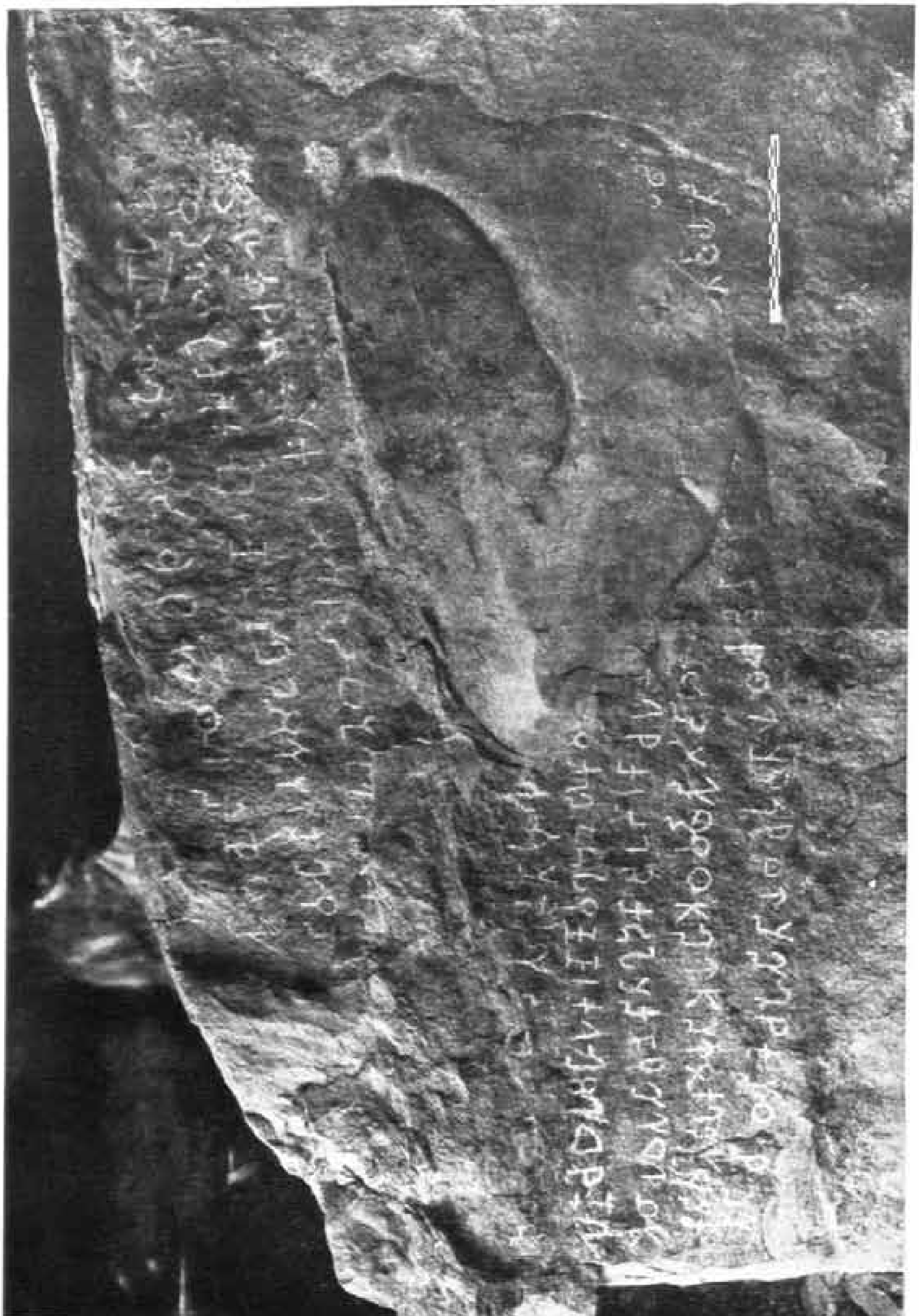
D



A, *Amaravati* : *Brahmi inscription of first century A.D.*; B, *Ahmadabad* : *inscription of A.D. 1667*; C, *Hampi* : *early Brahmi inscription*; D, *Talpura* : *Asokan Brahmi inscription*. *See pp. 60, 62 and 63*



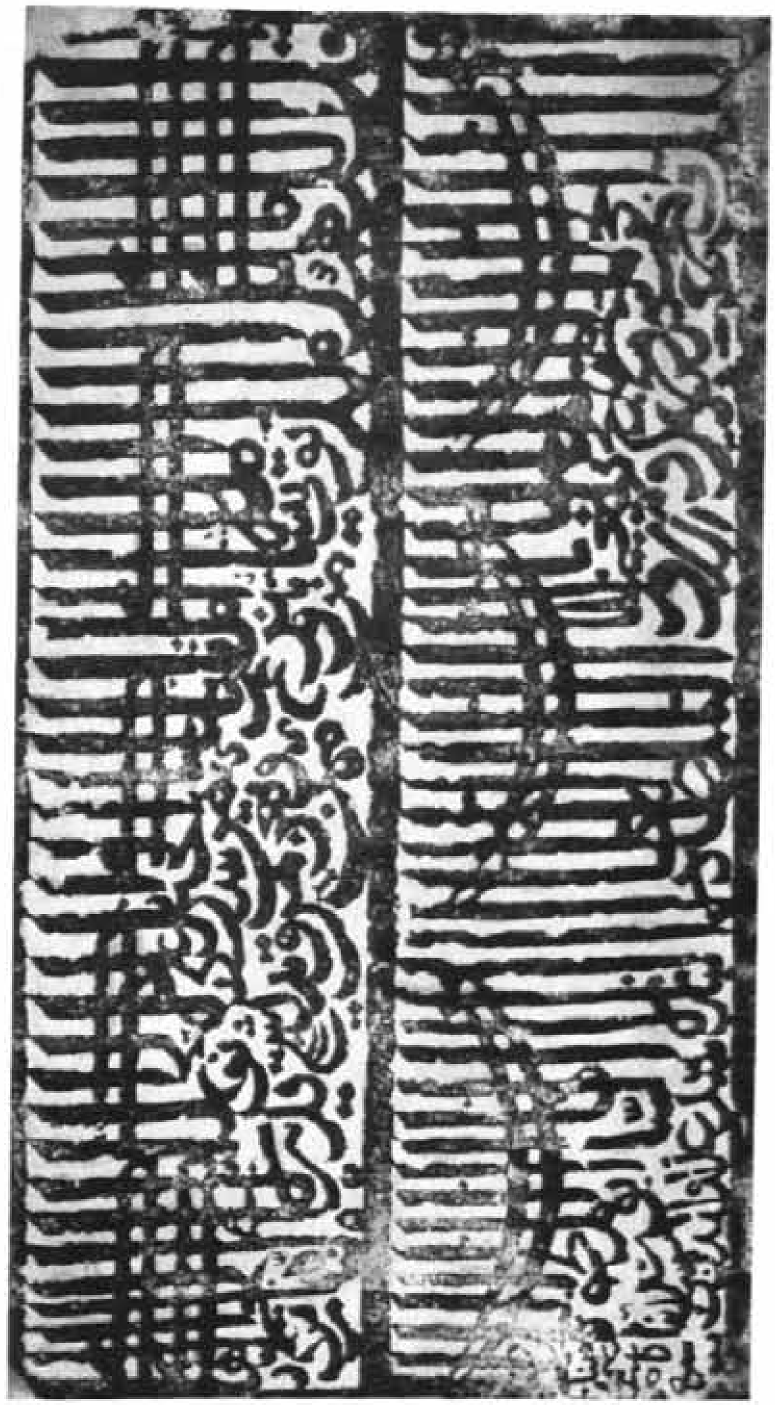
Pangoraria : Asokan inscription on the façade of a cave. *See p. 63*



Pangoraria : *Asokan Minor Rock-edict.* *See p. 63*



A



B

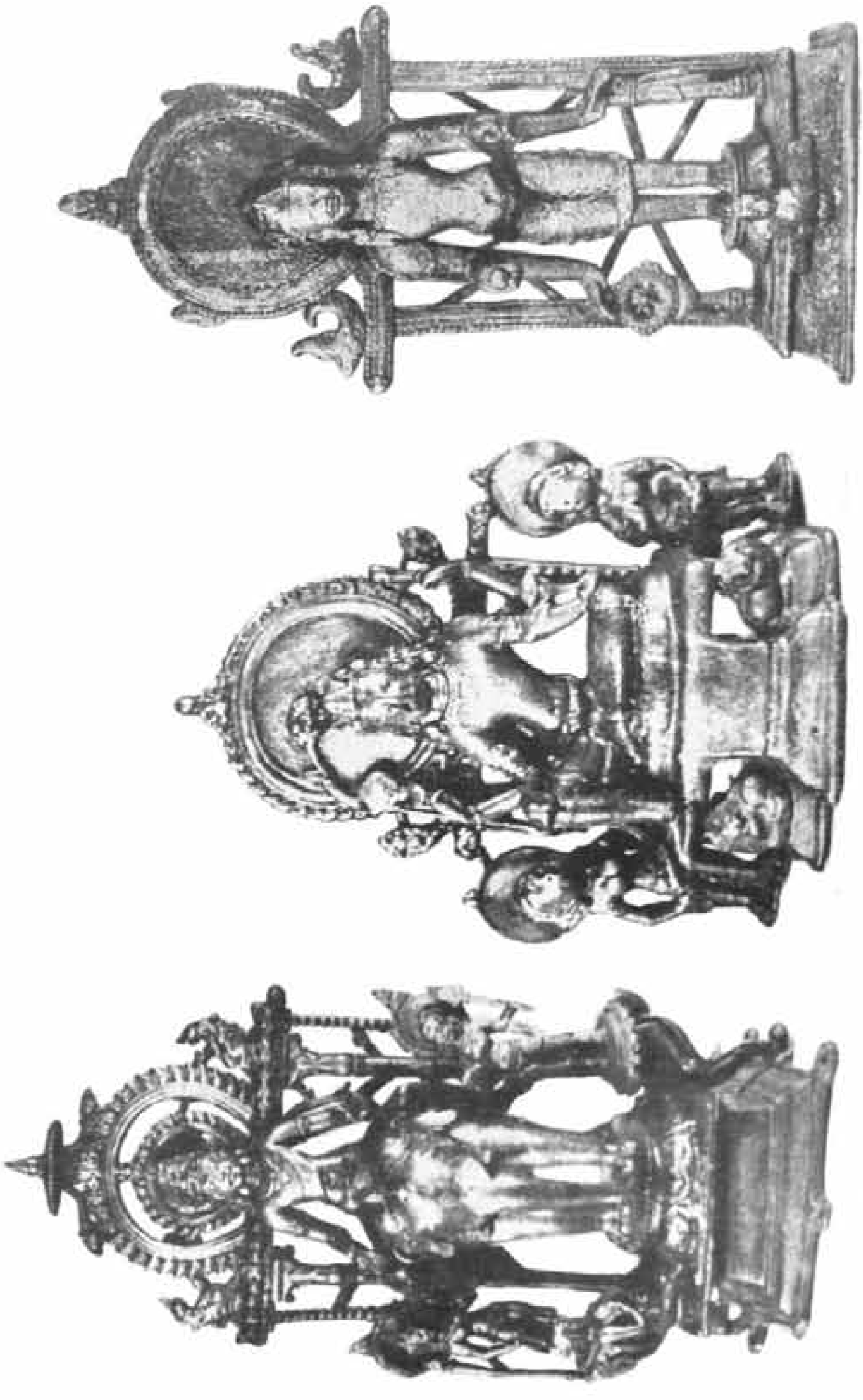
A. New Delhi : epitaph of Khwaja Mubashshir ; B, Sonda : inscription of Husain Shah. See pp. 67, 71





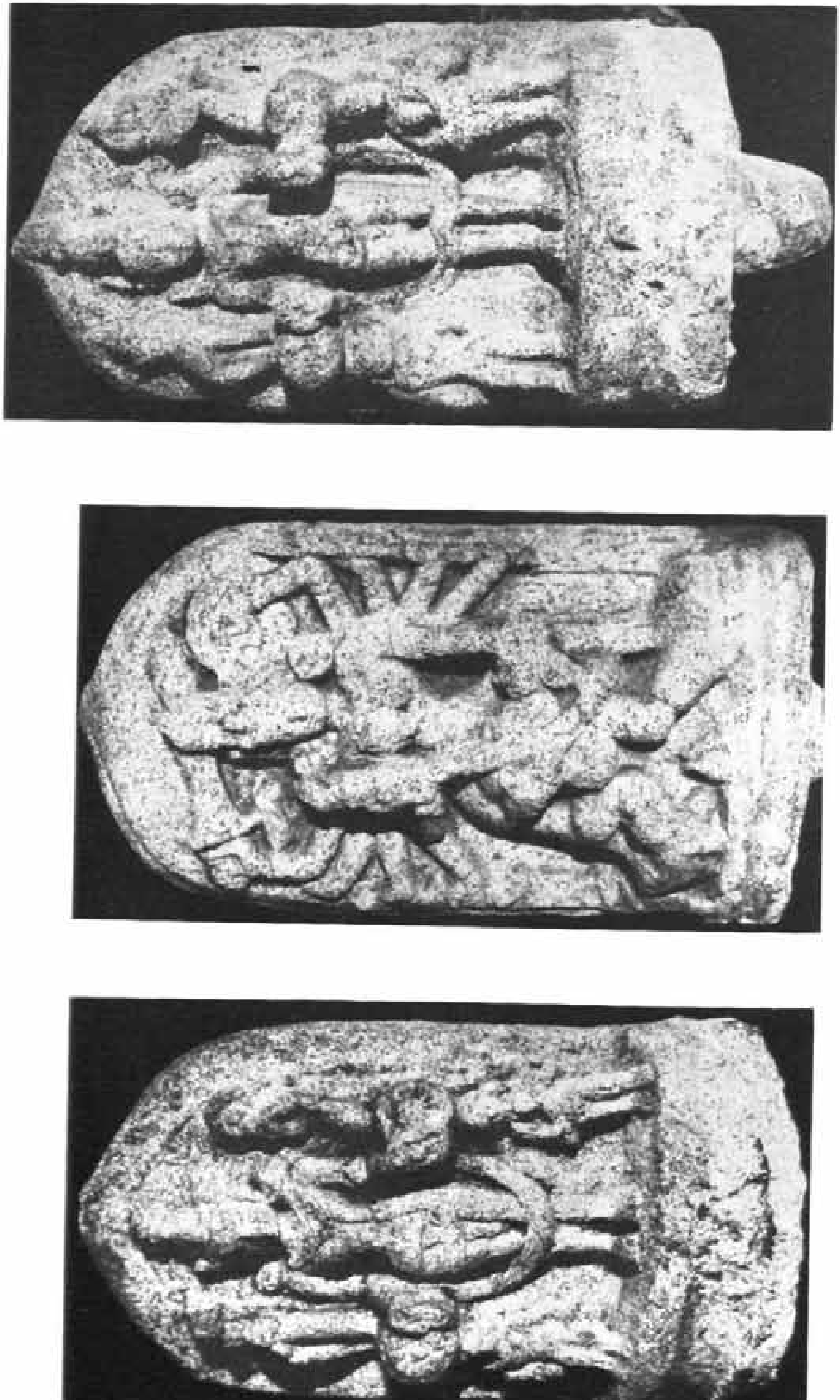
A B

Indian Museum, Calcutta : A, image of Vishnu, eighth century A.D. ; B, image of Bhairava. *See p. 90*



A B C

State Museum, Assam, Gauhati : images of, A, Indra ; B, Manasa; C, Vishnu. *See p. 90*

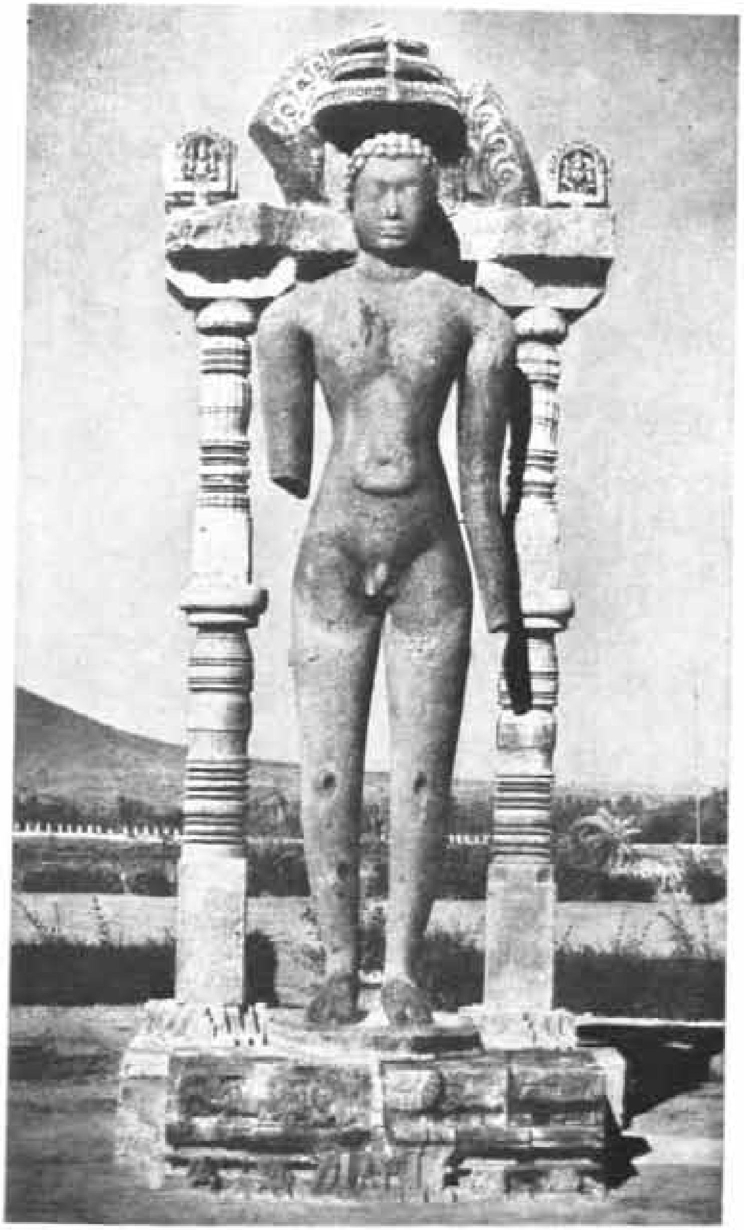


A B C

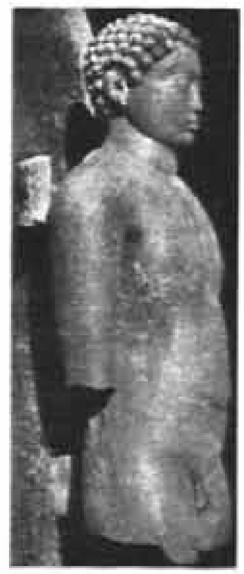
State Museum, Assam, Gauhati : images of A, Vishnu; B, Mahishamardini; C, Surya. *See p. 91*



B



A



C



D



E



F



G

Archæological Museum, Halebid : A, *standing figure of Adinatha, after mending*; B—G, *fragments of Adinatha, before mending.* *See p. 91*



A B C

National Museum, New Delhi : A, *image of Maitreya, second century A.D.*; B, *Vishnu with consorts, from Bengal*; C, *dvarapala, ninth-tenth century A.D.* *See p. 94*

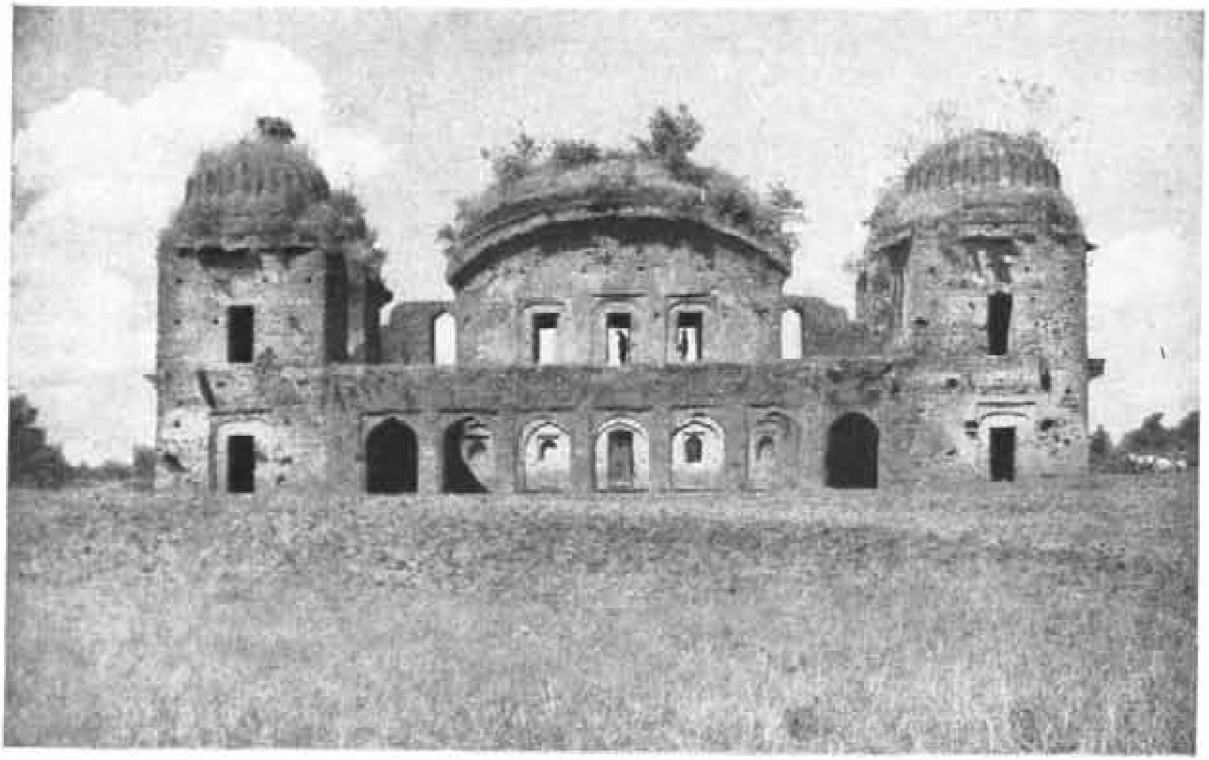


A

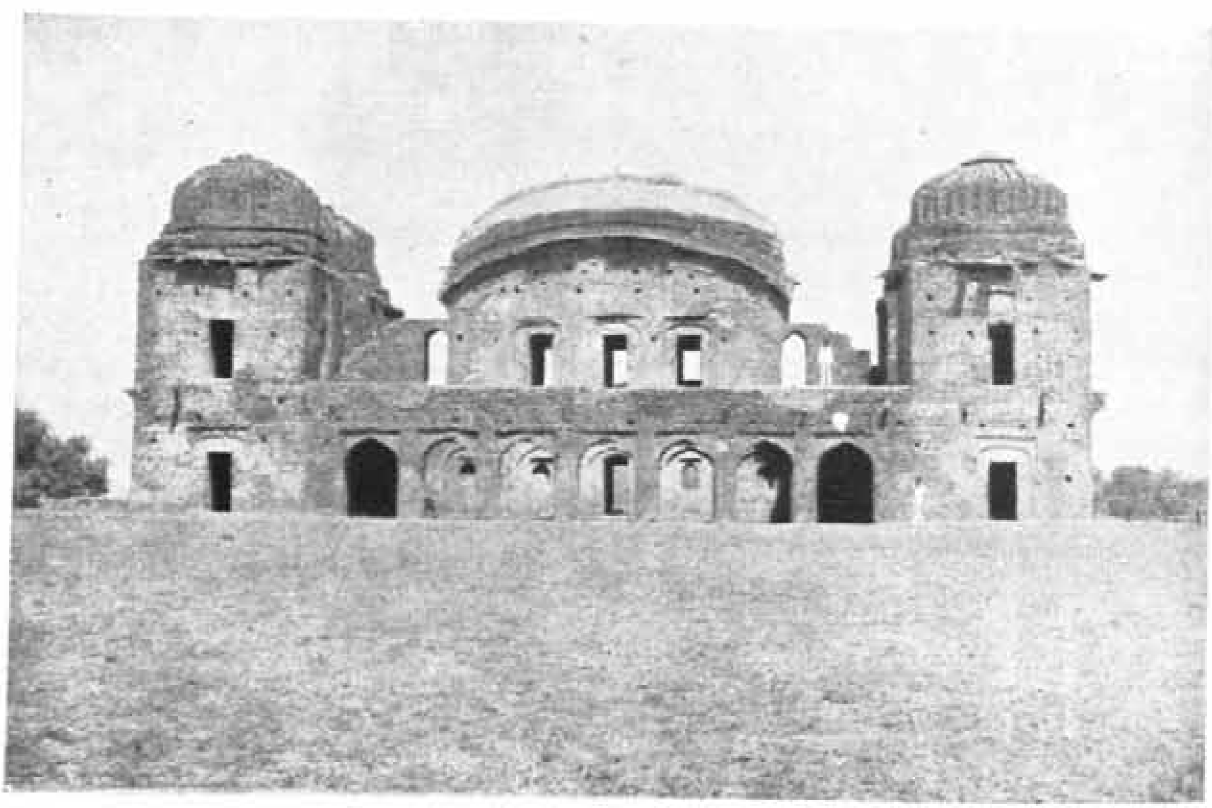


B

Reorganized galleries : A, *Fort St. George Museum, Madras*; B, *Archaeological Museum, Velha Goa.* *See pp.* 93, 95



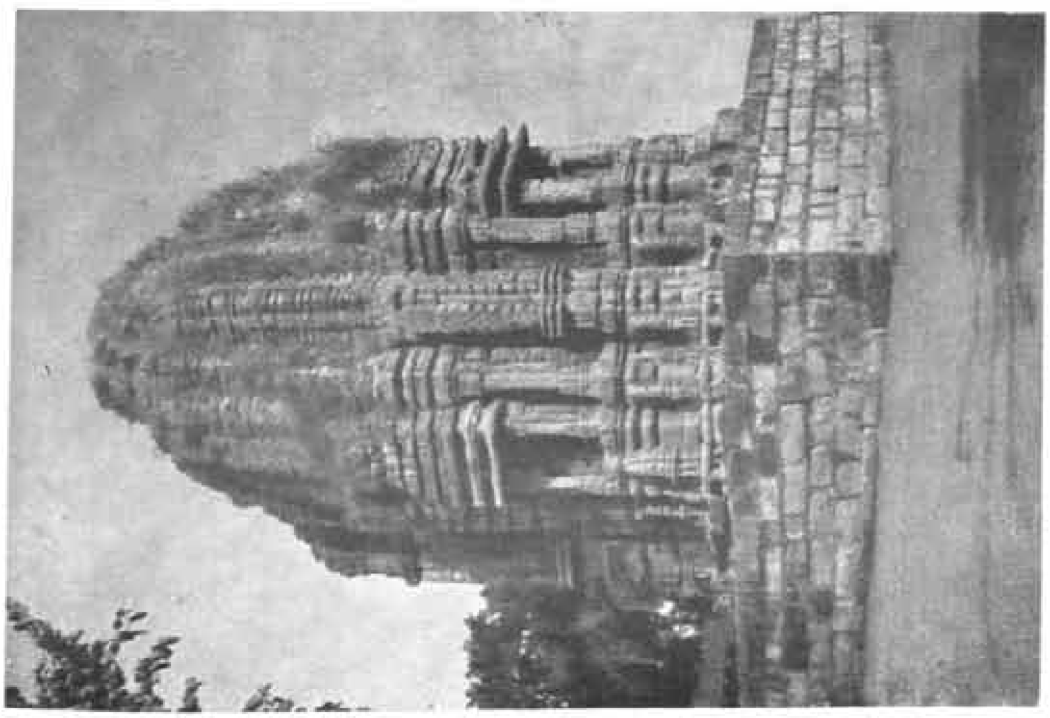
A



B

Chaugan : Begum Mahal, A, before and B, after conservation. *See p. 97*

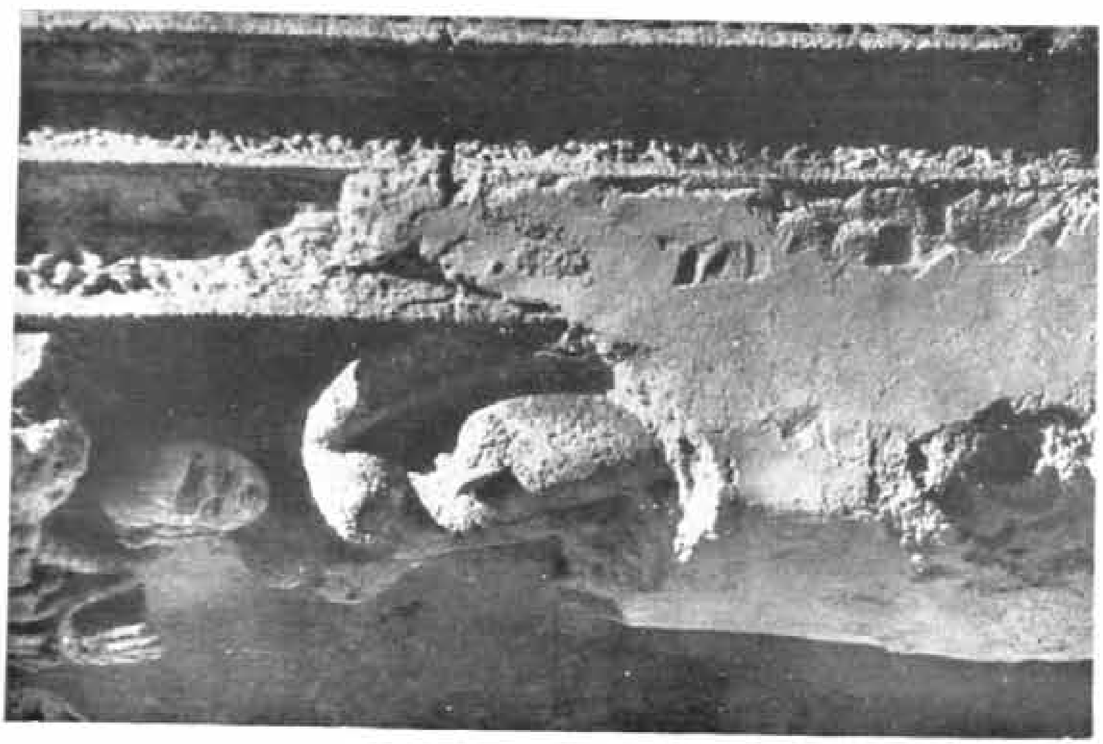




A B

Kakarnath : Ramnukteswara temple. A, *before and* B, *after conservation*. *See p.* 97



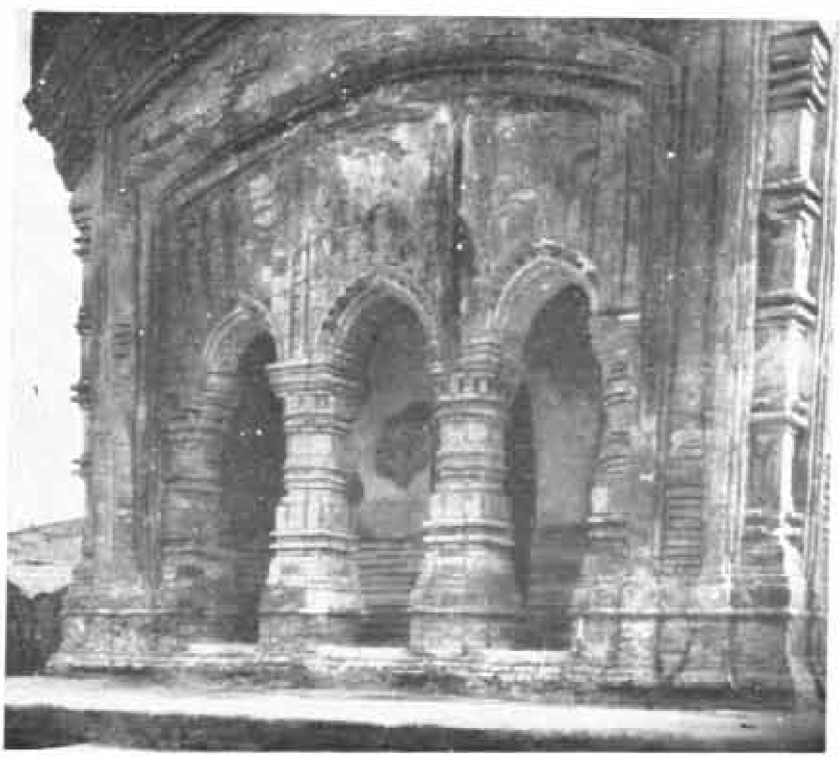


A B

Puri : Lakshmi temple, A, *before and* B, *after removal of plaster.* *See p. 100*

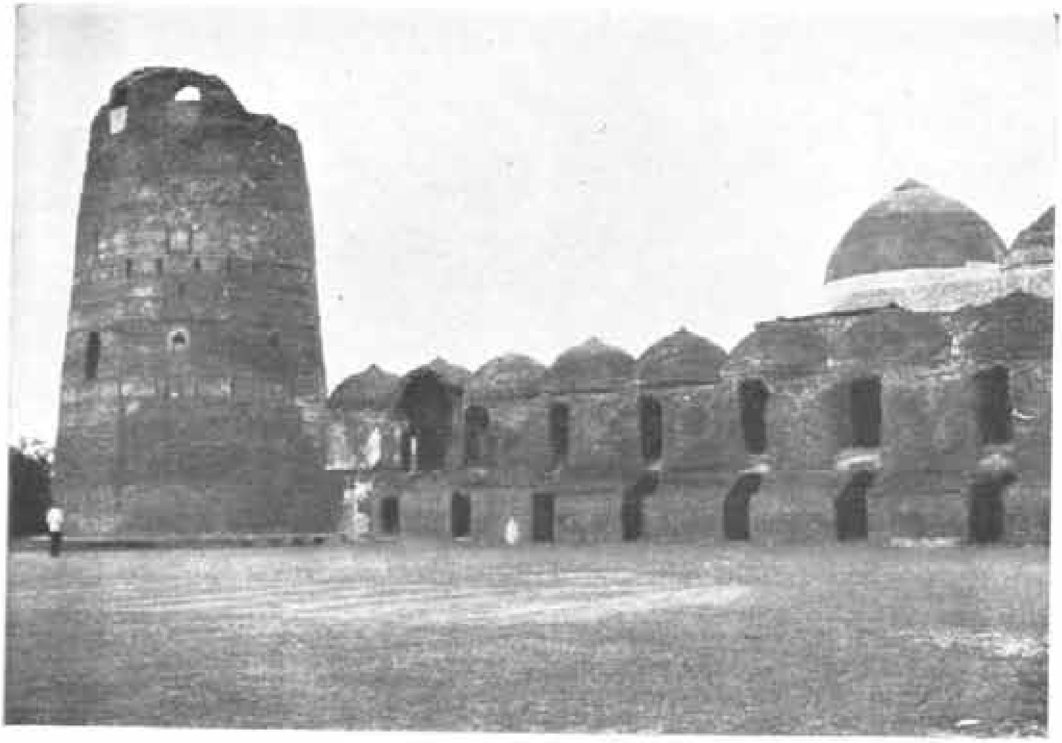


A

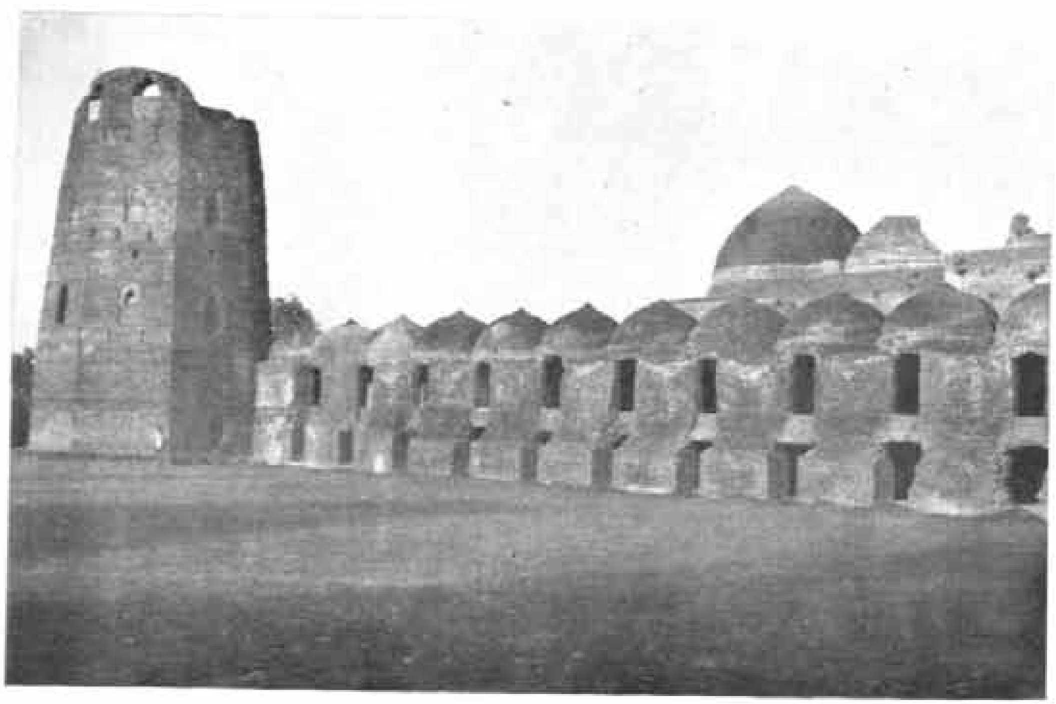


B

Kalna : Ratnesvara temple, A, before and B, after conservation. *See p. 100*



A



B

Katra mosque, A, before and B, after conservation. See p. 101



B

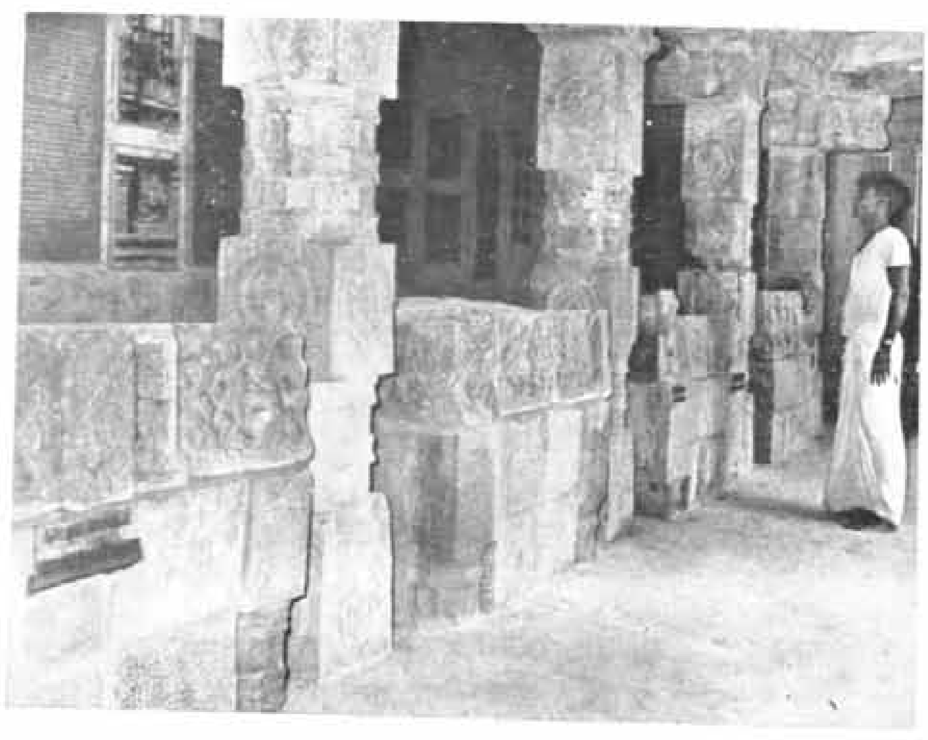


A

Kanchipuram : Kailasanatha temple. A, before and B, after removal of plaster. *See p. 111*



A



B

Darasuram : Airavatesvara temple, A, *before and* B, *after conservation.* *See p. 115*

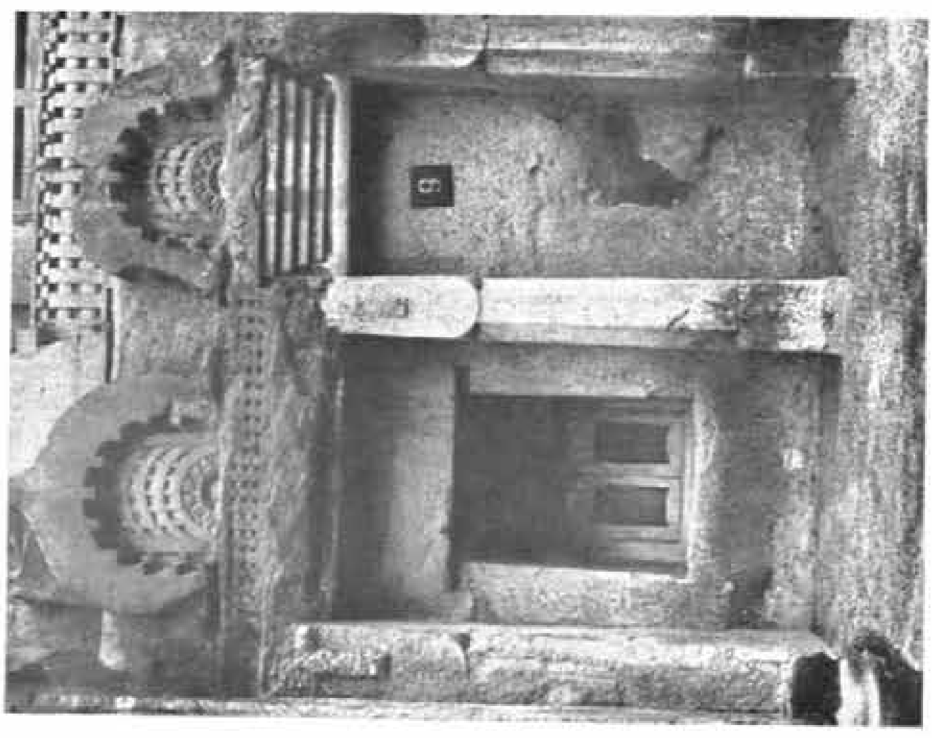


A

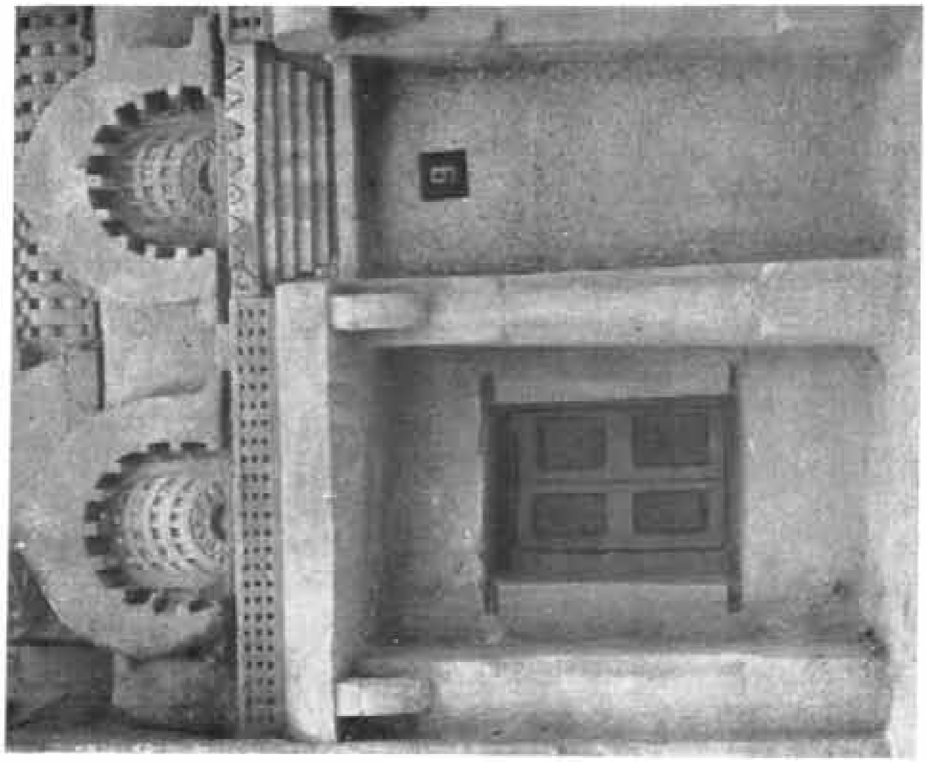


B

Chandragiri : ancient tank in front of Raja Mahal, A, *before and* B, *after conservation.* *See p. 116*



A

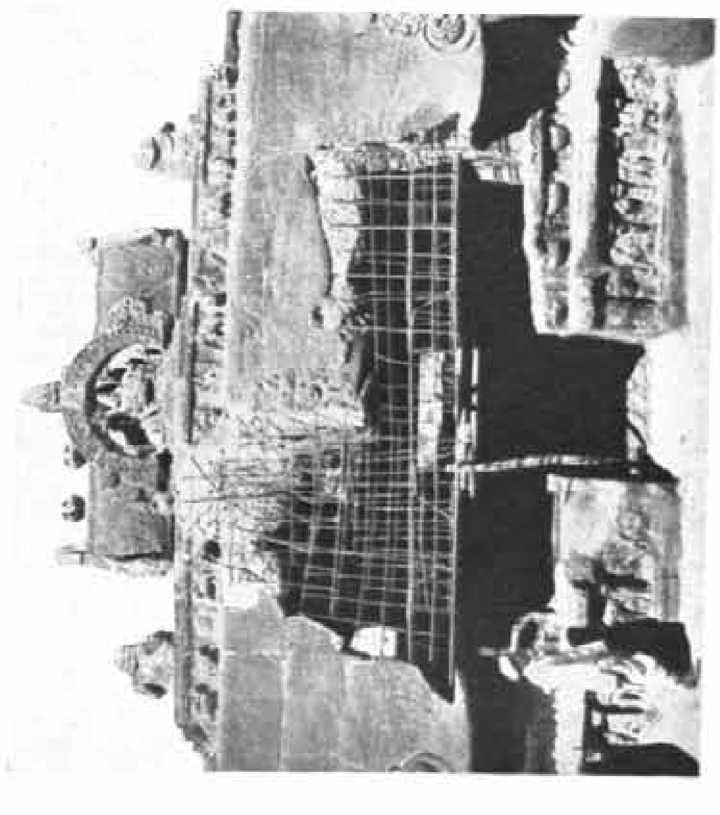


B

Ajanta : Cave 9, A, before and B, after conservation. *See p. 119*



B

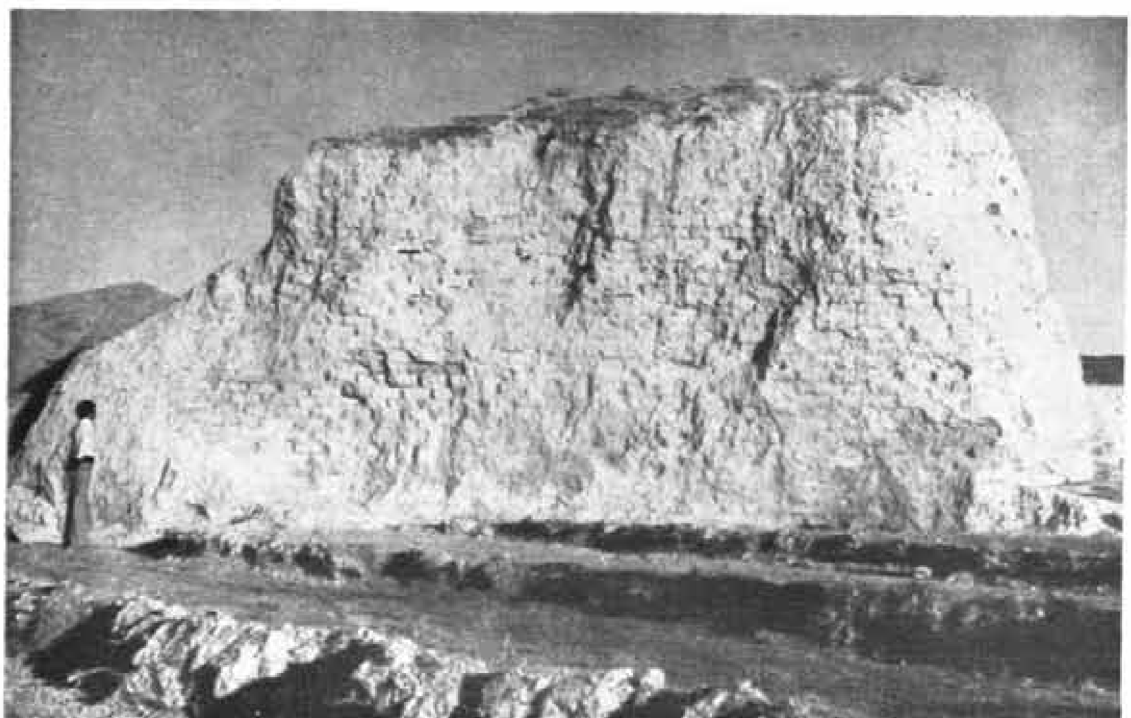


A

Ellora : rock-cut caves, A, before and B, after conservation. *See p. 120*



A

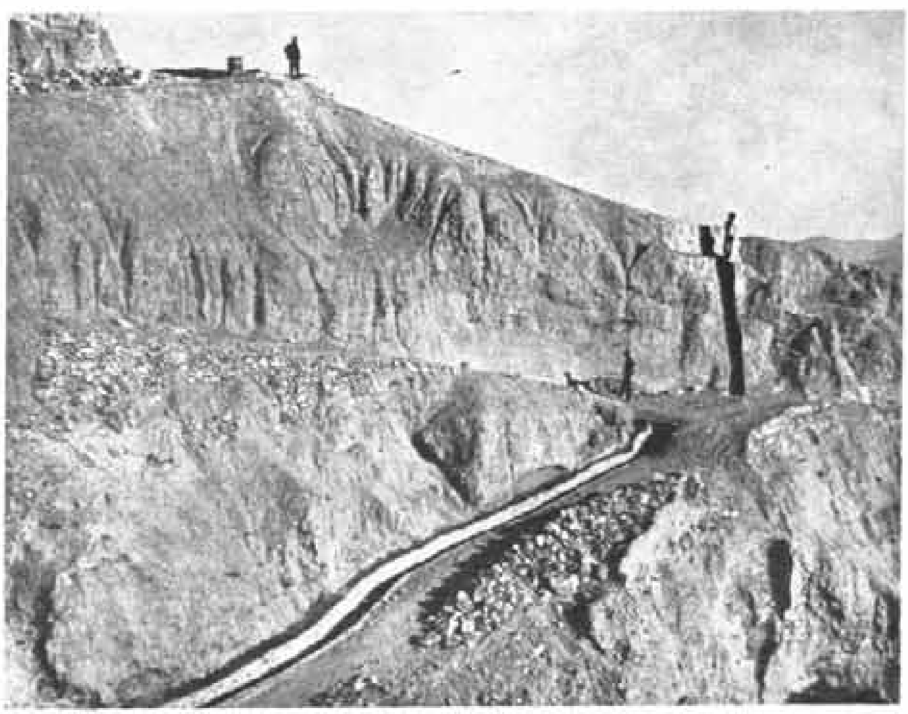


B

A, *Qila Faridan, Afghanistan* : *general view of the fort* : B, *Begram, Afghanistan* : *general view showing courses of mud-bricks.* *See p. 127*



A

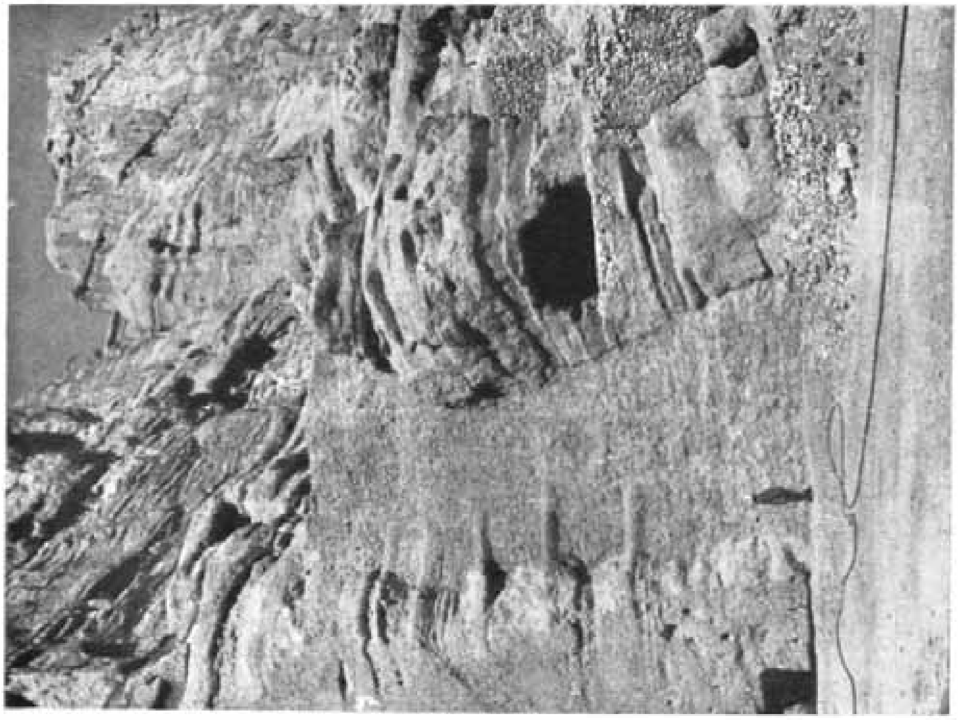


B

Bamiyan, Afghanistan : shrine of Big Buddha, A, *during and* B, *after conservation.* *See p. 128*

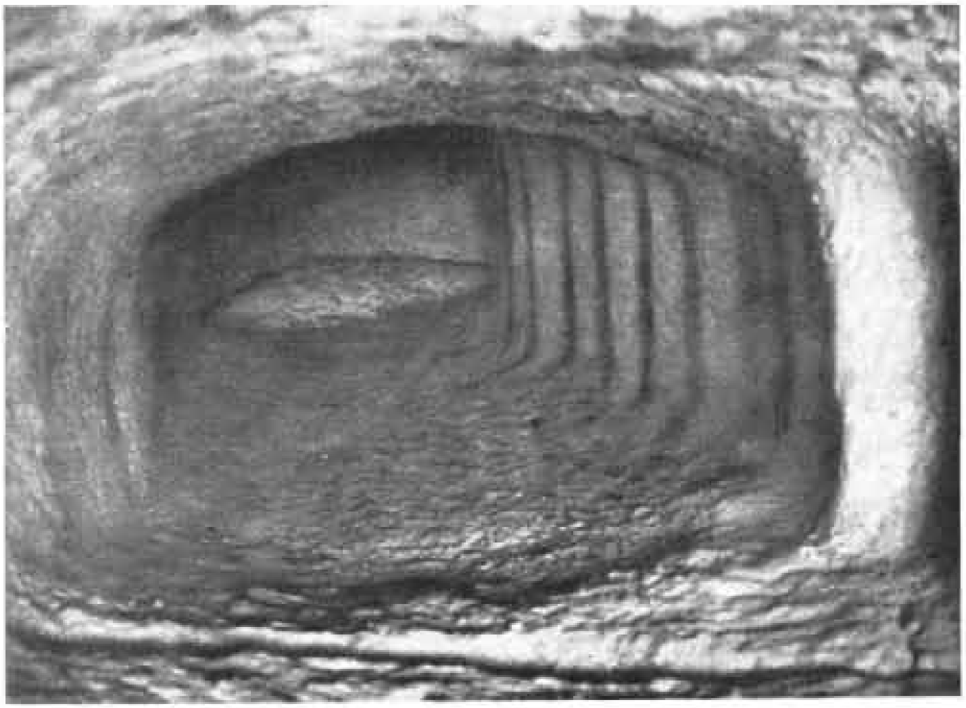


A



B

Bamiyan, Afghanistan : shrine of Big Buddha, A, before and B, after conservation. See p. 128



B



A

Bamiyan, Afghanistan : shrine of Big Buddha, A, before and B, after conservation. *See p. 128*



A



B

Bamiyan, Afghanistan : shrine of Big Buddha, wall-paintings, A, *before and* B, *after chemical treatment.* *See p. 128*

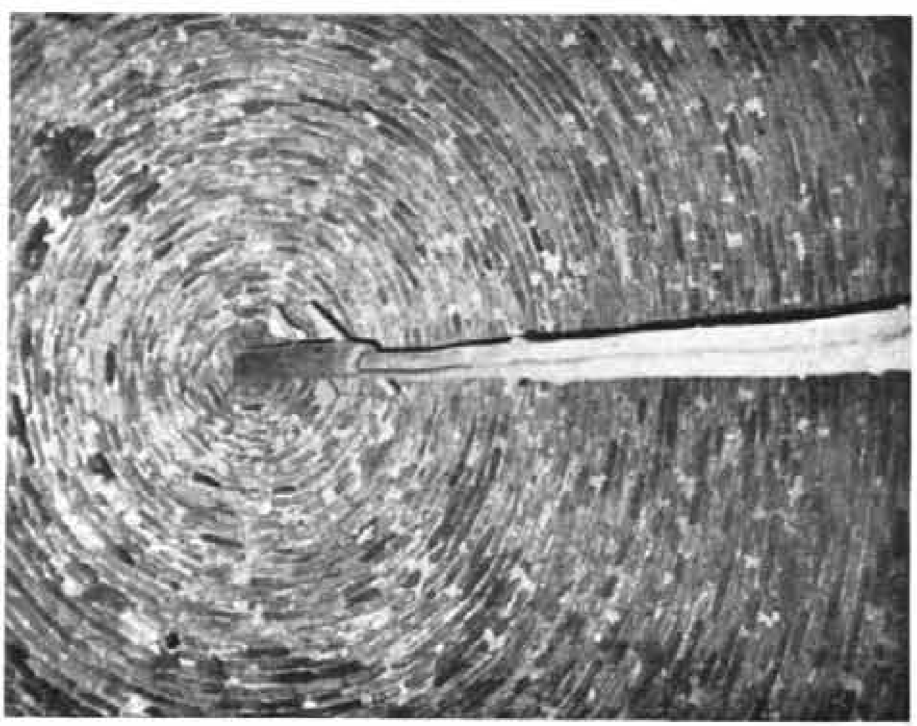


A

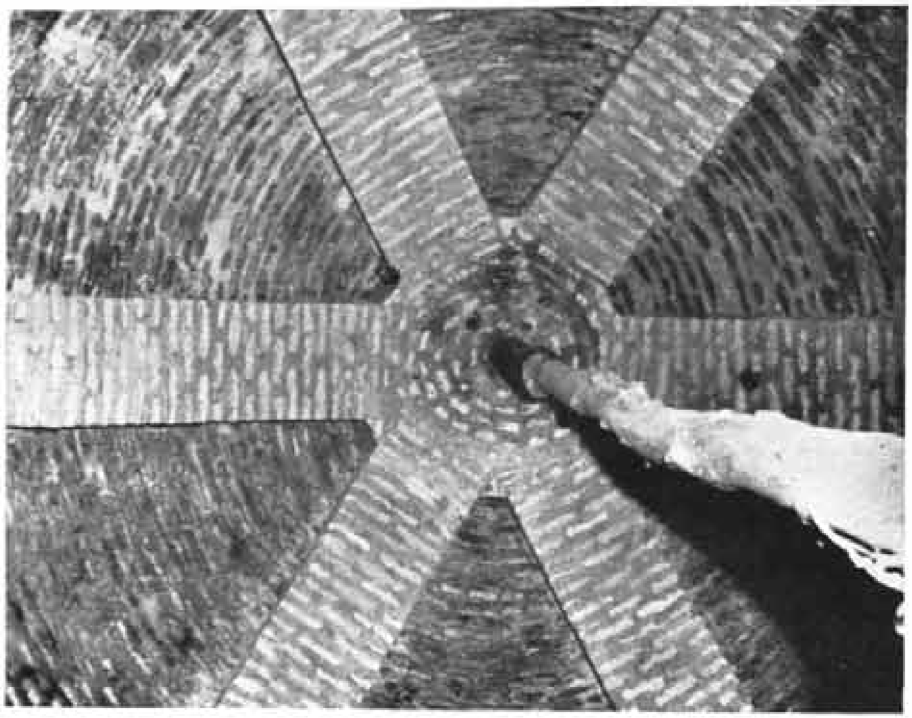


B

Bamiyan, Afghanistan : shrine of Big Buddha, stucco work, A, *before and* B, *after chemical treatment.* *See p. 128*

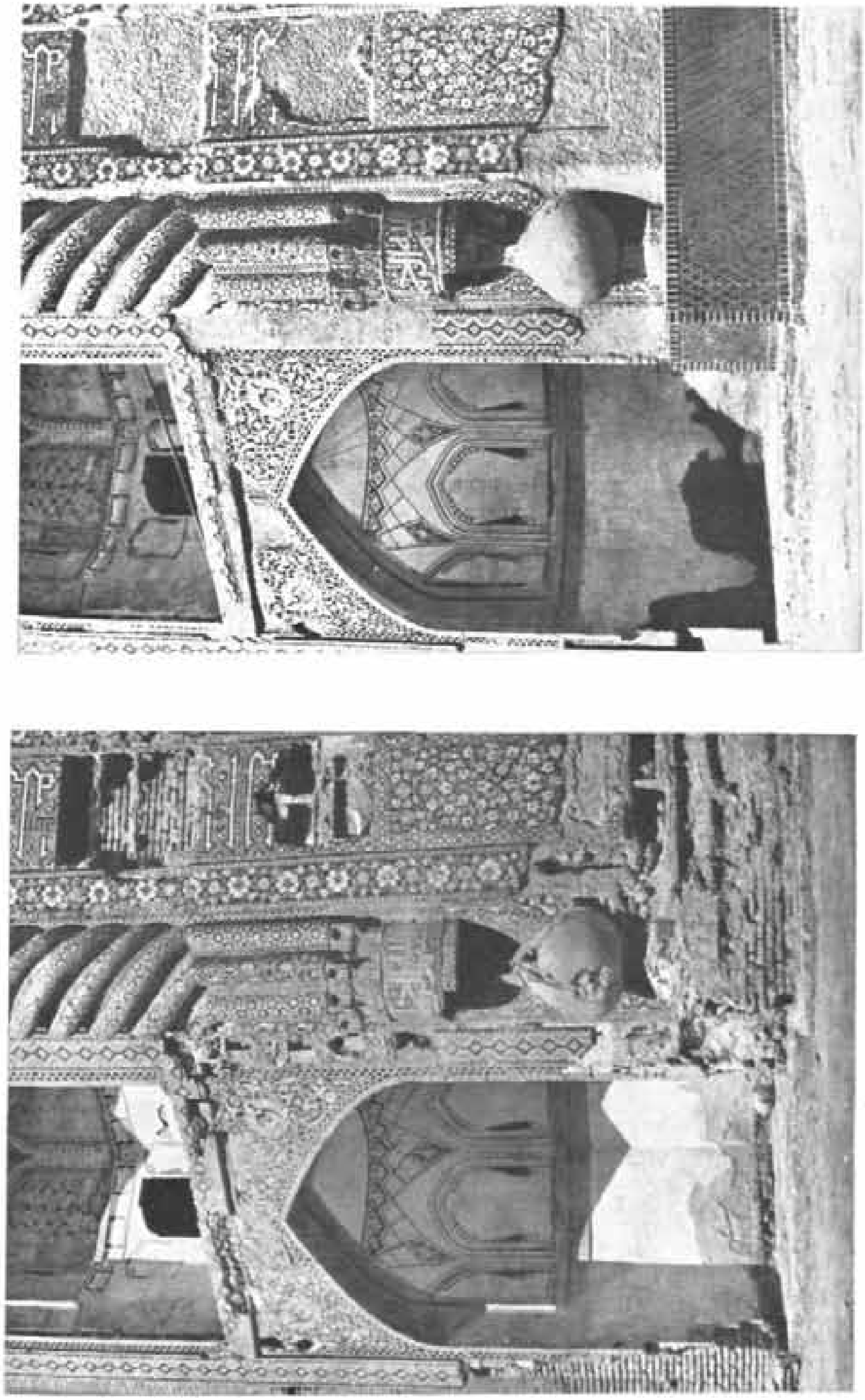


A



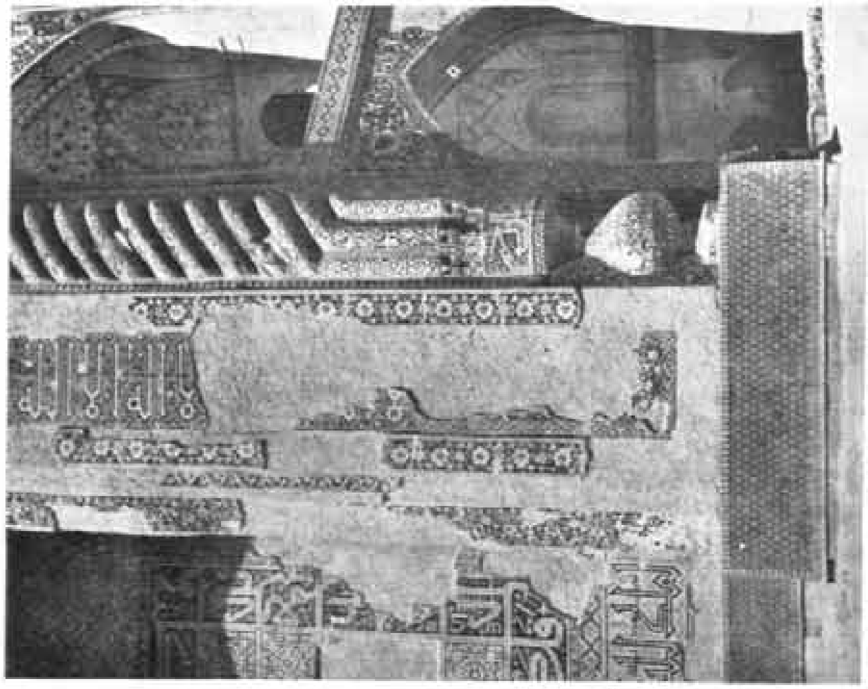
B

Balkh, Afghanistan : shrine of Khwaja Abu Nasar Parsa, A, before and B, during conservation. See p. 128



A B

Balkh, Afghanistan : shrine of Khwaja Abu Nasr Parsa, A, before and B, after conservation. *See p. 128*

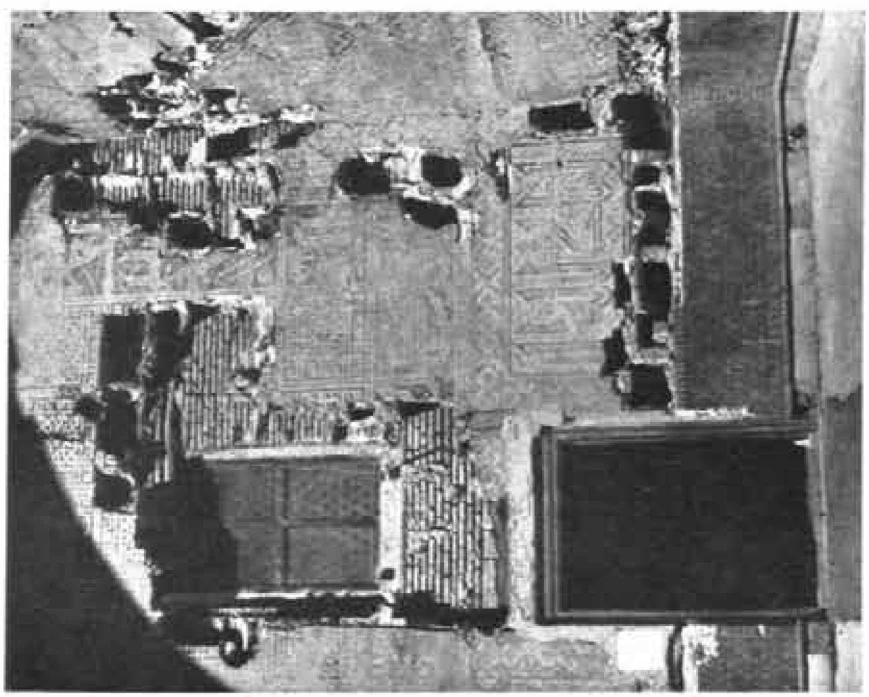


B



A

Balkh, Afghanistan : shrine of Khwaja Abu Nasar Parsa, A, before and B, after conservation. *See p. 128*

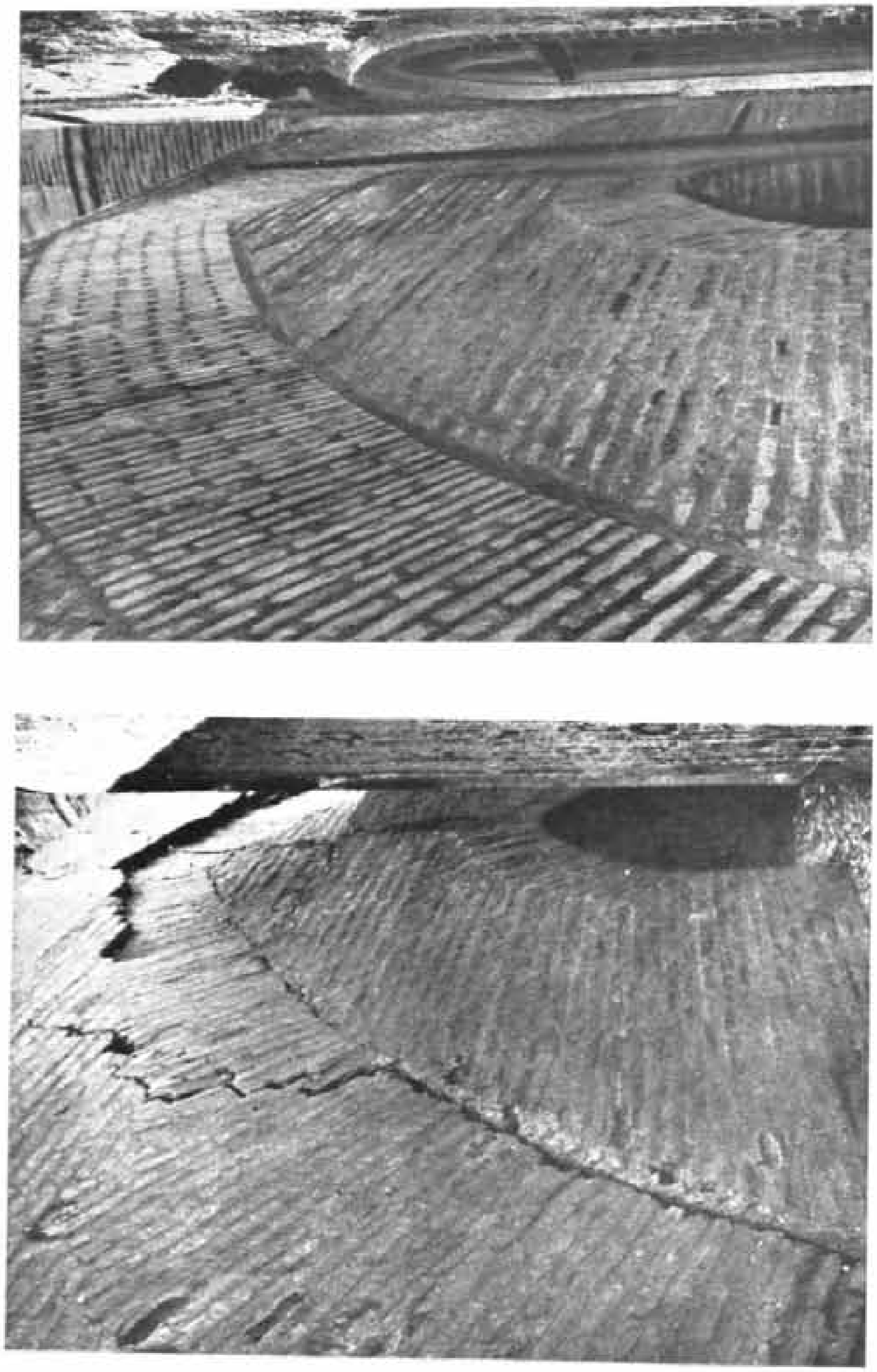


A



B

Balkh, Afghanistan : shrine of Khwaja Abu Nasar Parsa, A, *before and* B, *after conservation.* *See p. 128*

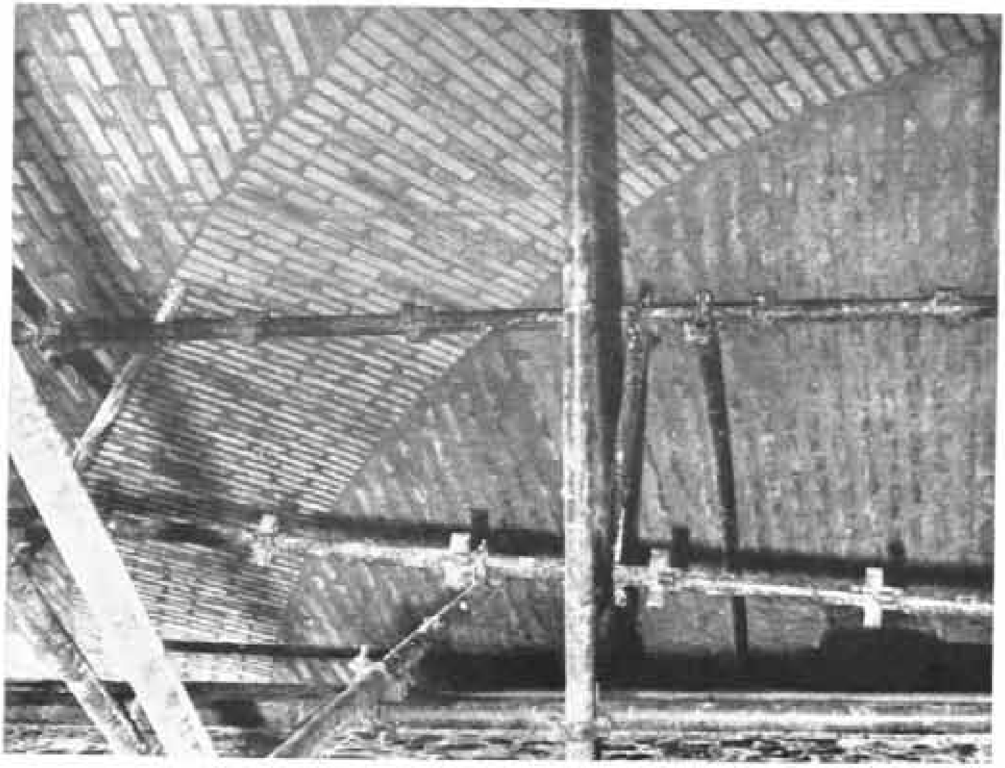


A B

Balkh, Afghanistan : shrine of Khwaja Abu Nasr Parsa. A, before and B, After conservation. See p. 128



A

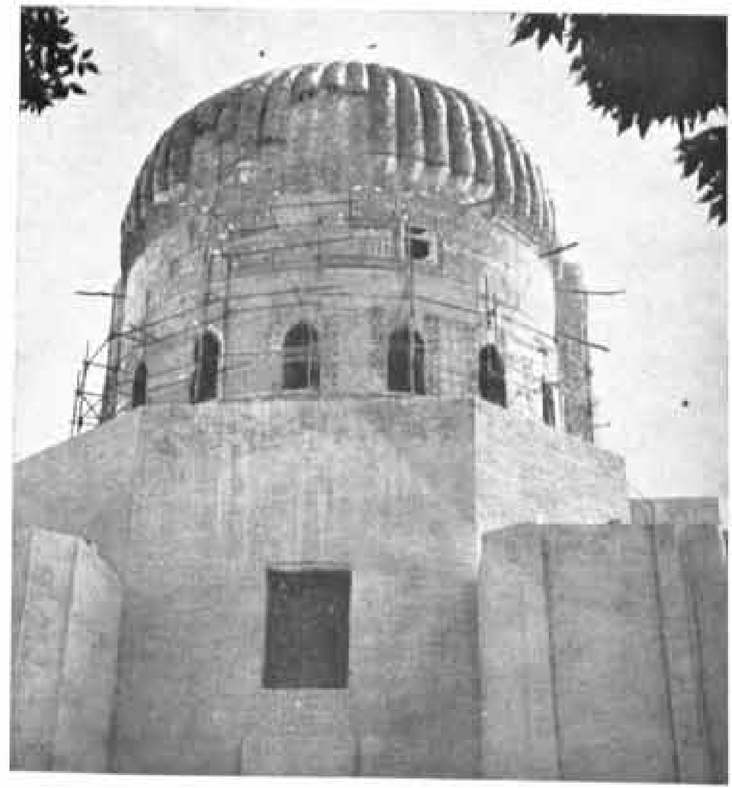


B

Balkh, Afghanistan : shrine of Khwaja Abu Nasr Parsa. A, *before and* B, *after conservation.* *See p. 128*

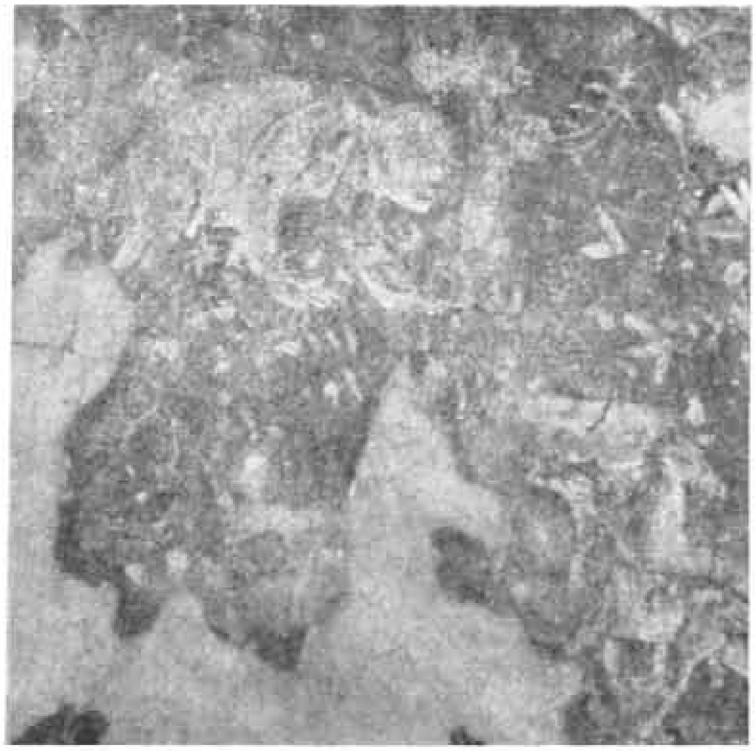


A



B

Balkh, Afghanistan : shrine of Khwaja Abu Nasar Parsa, A, *before and* B, *after conservation.* *See p. 128*



A

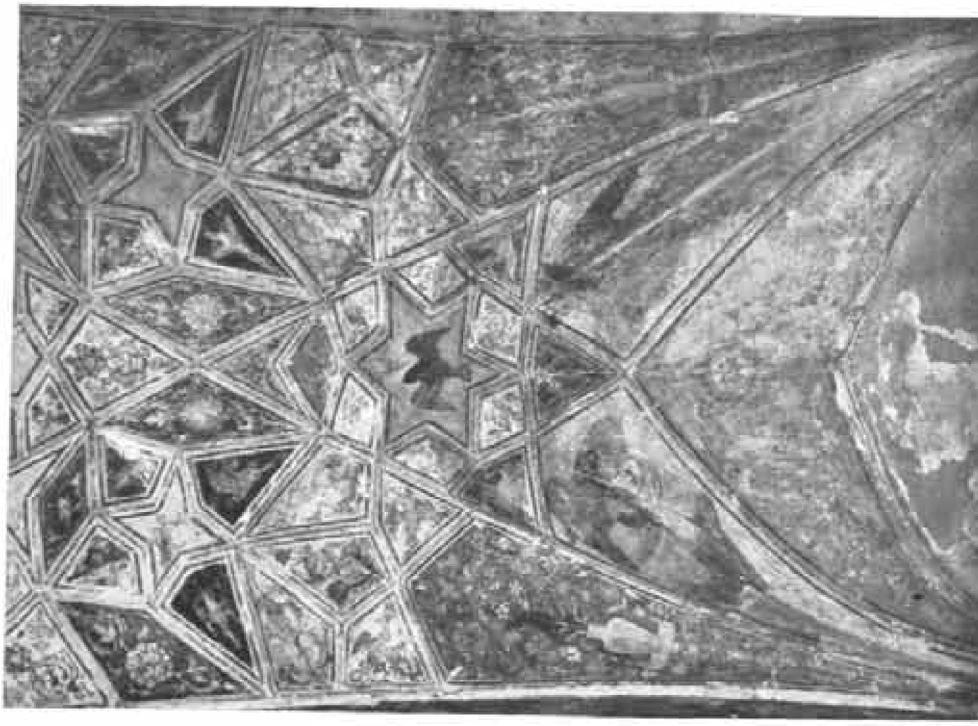


B

Ajanta : *Cave* 17, A, *before and* B, *after chemical treatment*
See p. 131



A



B

Agra : Arambagh baradari, A, *before and* B, *after chemical treatment.* *See p. 135*